

*FSA Integration Partner*

United States Department of Education

Federal Student Aid



**Data Strategy Enterprise-Wide  
Data Framework Team  
123.1.4 Data Framework Specification**

*Task Order #123*

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## **Executive Summary**

The Data Framework Specification documents a high-level cohesive data approach that includes the following core capability areas: Access Methods, Data Quality and Standards, Data Architecture, Data Stewardship, and future-state business flows. This specification serves as a tool for the consolidation of overall data strategies, including Technical Strategies, Student and Institution Common Identifier Strategies, Access and Enrollment Management, and the Extensible Markup Language (XML) Strategy into a comprehensive strategic vision. The foundation of this vision is based on the data flows and enterprise logical view compiled during the As-Is System Data Flows effort, and the data strategy business objectives gathered during the Data Quality Mad Dog effort.

This vision is a plan that maps the alignment of business processes to provide and service Title IV Aid with a focus on the business processes of Federal Student Aid (FSA) rather than within system silos. This target state has three main components; Business Process Alignment, a Common Data Architecture and finally, a Technology Strategy that supports the integration of processes and data to provide an enterprise solution for FSA.

### ***Business Process Alignment***

The key paradigm shift is that the enterprise should move from a system / task focus to a business process focus – further meaning that the business of FSA should be conceptualized in three components 1) Front End Processes – including Application, Origination & Disbursement, and Trading Partner Management (TPM), 2) Back end processing – including all aspects of servicing and 3) Cross Program Financial, Administrative, and Research needs – including Financial Management (FM), Policy and Administrative Operations, and certain functions traditionally performed by the National Student Loan Data System (NSLDS). These process groupings may initially have multiple systems, data sources and access models that support them, but over time these systems will integrate and reduce in number.

This shift in thinking will require the migration of functions executed in multiple systems, or at multiple points within the Life Cycle, out of those business areas and into a shared function model. This will most notably impact the Central Processing System (CPS) and NSLDS. For example, the calculation of Estimated Family Contribution (EFCs) will become an Enterprise Shared Function and the execution of Account Maintenance Fee (AMF) calculations will be within the TPM process grouping.

Lastly, in order to align to these components, a significant amount of business logic currently specialized and compartmentalized within system silos will need to be coordinated or consolidated so that data can be used universally, enabling a common data architecture.



### *Common Data Architecture (CDA)*

The movement to a Common Data Architecture (CDA) for FSA data implies sweeping data architecture changes and data usage integration. At the core of the CDA is the fundamental shift to using a common data repository for front-end business processing. The foundation for this data architecture change is the reaching of common definitions and usage of core components of data across the enterprise and within the student aid community. The method for codifying this core component model will be through the use of an XML Registry and Repository for modeling. Along with this modeling comes the need for joint FSA and community governance and maintenance for these standards. As this repository is refined and enhanced, it will also become an invaluable tool for administering cross data source cleanup and measuring and maintaining data quality. Through this iterative process data will become more uniformly defined, facilitating maintenance of the CDA.

Key advantages of this approach are:

- Reduction of waste, fraud, and abuse through the consolidation of data sources resulting in the elimination of multiple reconciliation needs
- Improved financial integrity controls and partner oversight capabilities
- Ability to uniformly isolate and aggregate data for cross program analysis and research
- Reduction in time, energy and resources expended to shuttle data between systems and business processes
- Reduction in data source “housekeeping” maintenance and costs as a result of fewer physical data sources
- Enablement of common identifiers for key entities such as Students (Applicants / Borrowers) and Trading Partners
- Consolidation of Trading Partner data into a single system making the transition to a single sign-up / single sign-on solution possible

However, these methods and data architecture changes alone do not enable the insightful analytics and access to key business information that FSA needs to continue on its course to better service. A great deal of cross program requirements analysis still needs to be performed; however, these data changes along with a sound technical strategy will make those requirements achievable.

### *Technical Strategies*

Technical strategies provide the glue that binds these business and data changes together to enable the advancements outlined above. This set of strategies includes a robust data storage and business intelligence suite enabling the enterprise wide sharing of data for both front-end transactional and cross program analytical needs. It also contains an Intelligent Middleware layer that enables shared services, batch and real-time data exchange to achieve the right-time interface for the user, and management of common FSA business logic. The glue has a single “branded” Web identity for FSA through which Government to Customer (G2C) commerce is conducted – incorporating customer centric portals and information. Another of the strategies



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is the concept of a universal FSA Gateway providing a consolidated point of entry for all Government to Government (G2G) and Government to Business (G2B) system to system interaction. Finally, it includes an enterprise-wide single sign-on solution and role-based access rights model necessary to allow seamless navigation and promote the value of a consolidated entry point.

This is the outline of the Target state vision. However, this outline alone will do little good without a roadmap for navigating toward it and the continued collaboration of FSA and the Integration Partner. The next step to reaching this vision requires the continued vetting and exploration of how to evolve from the current state of FSA toward the target state captured on the following pages. That effort will facilitate the gathering of enterprise requirements for schools and trading partners. It will also explore the solutions necessary to service enterprise data needs and business intelligence solutions that will provide the optimal solution for FSA and its consumers.



## Amendment History

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## **1 Introduction**

### **1.1 Purpose**

The purpose of this document is to identify the high-level approach for the future business architecture of FSA. The Data Framework Specification documents the consolidation of overall data strategies into a comprehensive strategic vision. It summarizes data strategy business objectives as well as the future state of data components, data flows and the logical enterprise view of FSA data.

The current architectural environment, both business and technical, has been documented by various Data Strategy efforts (XML Strategies, Access Enrollment, Common Identifiers, and Technical Strategies). Due to the breadth of FSA systems, the high volume of data, and the amount of personnel involved, these efforts were limited in scope to identifying the core processes and components. The efforts have been successful in establishing and understanding FSA's business and providing a snapshot of the strengths and weaknesses of the organization's data flow and data architecture. The current state assessment (Deliverable 123.1.2 As-Is System Data Flows) provided important information on baseline conditions. This information helped identify the changes that will have the greatest positive impact on FSA.

Once a baseline had been established, work began with FSA's Business Integration Group to formulate the context for developing a target state vision for the business and technical architectures. The proposed architectural components, their attributes, and relationships to one another, are further defined in the business and data architecture sections of this document. In general, the future-state should: integrate FSA systems and provide new technology solutions for data issues, improve program integrity, reduce program administrative costs, provide opportunity to improve human capital management, and improve products and services to provide better customer service.

### **1.2 Scope**

The future-state proposed in this document should be implemented in an evolutionary, not revolutionary, manner. Both the business and technical capabilities described here are designed to be achieved gradually using incremental development methods. Using this low-risk approach will help ensure that FSA can conduct "business as usual" throughout the implementation of the To-Be vision. It is important to note that while the Data Framework Specification will blueprint the future-state based on findings of the various Data Strategy efforts, it does not include the design or implementation of the proposed future-state.

### **1.3 Methodology**

The vision for the enterprise-wide data strategy was developed with inputs from various sources including FSA's Business Integration Group, the individual Data Strategy project teams (XML, Routing Identifier (RID), Standard Student Identification Method (SSIM), Access &



Enrollment, and Technical Strategies), and Integration Partner on-going work. Various FSA system and business owners supported the Data strategy effort by supplying input, reviewing deliverables, and providing feedback. The methodology for documenting this To-Be vision is broken down as follows:

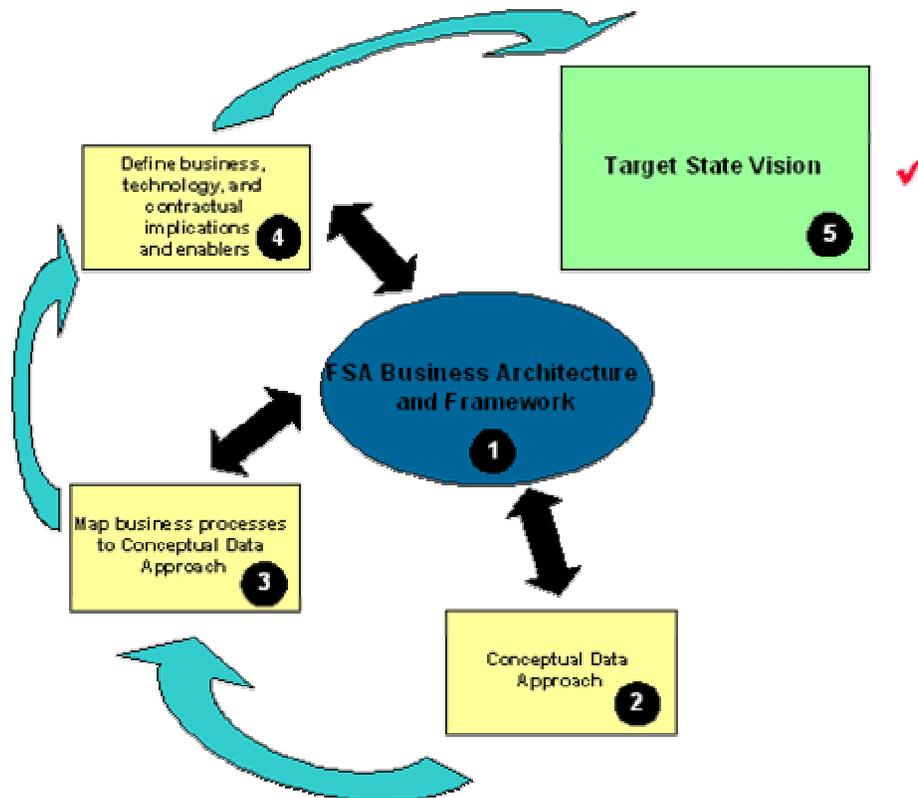
- **Data Strategy Background Inputs:** Leveraging work done from the Data Strategy Team’s As-Is System Data Flows (Deliverable 123.1.2), FSA Enterprise Functions were defined and logically grouped. This information coupled with Business Objectives gathered from FSA system owners and quality issues from the Mad Dog deliverable (123.1.3), defined initial requirements for a To-Be Business Architecture state.
- **FSA Future-State Business Architecture:** This section merges the initial requirements from the various data strategy efforts with input from FSA’s Business Integration Group (BIG) to form a To-Be diagram of the Business Architecture. To verify that each of aspect of FSA’s current business functionality is addressed, the As-Is system functions were mapped to this future state Business Architecture (see Section 3.2). This matrix delineates the current systems to the future state business areas and consolidates To-Be business areas into a more cohesive logical design that focuses on business processes rather than system silos. Using this matrix and the BIG vision framework as a baseline, FSA’s business owners further refined the To-Be business architecture through the process of mapping each enterprise function to a future state business capability area and determining which functions have the potential to become shared functions for the enterprise.
- **FSA Future-State Data Architecture:** Based on the Future-State Business Architecture, this section is broken up as a follows:
  - A variety of To-Be Data Architecture Options were created that demonstrate a progression towards a more consolidated and timely enterprise system. This section details the various options presented to FSA as well as the results of the option analysis.
  - A To-Be FSA Life Cycle Diagram presented based on the FSA Life Cycle Diagram from the As-Is deliverable and incorporates the Data Architecture option chosen during the analysis phase. It illustrates data flows between business areas, as defined in the business architecture section, and introduces the concepts of the Central Data Architecture, Enterprise Shared Functions, and FSA Gateway.
  - The Core Concepts section explains the major concepts of the Future-State vision. It ties in the visions for PIN Re-engineering, Access Enrollment, XML, Routing Identifier, Standard Student Information Method, and technical strategies with the proposed business/data architecture.
  - The To-Be Entity Flow Diagrams illustrates how FSA’s major entities: Person, Aid, School, and Financial Partner will “move” through the To-Be state. These diagrams build on the baseline established by the Entity Flows presented in the As-Is deliverable.



## 1.4 Results Achieved

This deliverable documents the foundational steps that have cumulated in the creation of the framework for FSA’s Target State Vision. Throughout these steps, FSA’s drive to find the right balance between efficient delivery and effective oversight has been the catalyst for developing an integrated, highly efficient business architecture. This architecture provided a holistic view of the enterprise, allowing the business owners to conceptualize an organized data design that would enable FSA to reach its objective of improving the program’s integrity and removing FSA from the government’s high risk list. To ensure this conceptual data approach aligned with the established business framework, the business owners then went through an exercise of mapping the business processes and their respective functions to the envisioned data architecture. After determining the data approach was viable, the final step before reaching the pinnacle Target State Vision was to define the implications of the vision and its required technical and business enablers. While this deliverable begins to outline the Target State Vision with its implications and enablers, the Technology Vision and Strategic Plan and the Quality Assurance Strategy and Implementation Plan will present the remaining components required to make the vision into a comprehensive Data Strategy.

The following diagram depicts the steps FSA’s business owners have undertaken to formulate the Target State Vision (see Appendix K: Data Strategy Retreat - Meeting Minutes for details on the retreats conducted as part of these steps).



**Figure 1. Process to Define Conceptual Target**



The outcomes from each of these steps served as input for various sections of the deliverable. The following is a list of each step, the section of the deliverable that documents the step's outcomes, and a summary of the outcomes/results achieved:

- Step 1: Section 3 - FSA Future-State Business Architecture
  - FSA's business processing was defined in terms of Business Capability Areas rather than siloed systems.
  - A holistic approach was established for Trading Partner Management. The business area should be responsible for enrollment, eligibility, and oversight functionality for all trading partners.
  - The need for front end business integration in the Financial Aid Life Cycle and common servicing for the back end business processes was emphasized.
- Step 2: Section 4.1 - To-Be Data Architecture Options
  - Business owners reached a consensus, agreeing on an option with consolidated, centrally shared data in a Common Data Architecture. It was noted that this architecture facilitates real time access to data, and changes to data are shared by all Business Capability Areas.
  - The Warehouse/Data Marts were defined as an integrated solution, rather than one-off single marts provided for specific business areas.
- Step 3: Section 4.2 - To-Be Life Cycle Diagram
  - Shared functions were defined as functions used by more than one Business Capability Area or by external customers. The business owners selected potential Enterprise Shared Functions (e.g., Credit Check, Establish and Distribute Cohort Default Rates, Calculate EFC, etc.).
  - For each business entity, one Business Capability Area was identified as having the stewardship of initially creating the entity record:
    - Application for all Person records
    - Origination & Disbursement for all Aid records, except Direct Consolidated Loan record which are created by Common Services for Borrowers (CSB)
    - Trading Partner Management for all Trading Partner Records
  - It was also noted the Common Data Architecture would provide enterprise wide views of the school and student entities throughout the Financial Aid Life Cycle.
  - The role of NSLDS in the target state was defined. Rather than being an "end of the line" data store, NSLDS becomes a central, integrated warehouse in the Common Data Architecture, receiving updates in every step of the enterprise's business processes. The analytical capabilities of NSLDS are enhanced by the CDA and they become a function of the Enterprise Analytics and Research Business Capability Area. Also, while NSLDS is no longer a system which executes procedures, there is a "virtual" NSLDS in the To-Be environment with the functions formerly performed by NSLDS being mapped to the Business Capability Area to which they are aligned (e.g., Trading Partner Management runs the CDR calculation, Partner Payment



Management performs the Account Maintenance Fee (AMF) and Loan Processing Issuance Fee (LPIF) calculations, etc.).

- Step 4: Section 4.3 – Target State Vision Core Concepts
  - All of the Data Strategy work was tied together to provide the framework for the Target State Vision
  - The FSA Gateway was highlighted as the common means for external systems to communicate with FSA.
  - Ownership for data was assigned to the CDA (the master copy remains in the CDA), with Business Capability Areas given stewardship to access and update the data during stages of the Life Cycle.
  - XML was identified as a standard language to be utilized when developing future interfaces.
  - Access management was defined to be a tool enabled at the enterprise level, rather than system unique definitions.
- Step 5: The Target State Vision is a collection of all the sections in this deliverable.

Section 4.4 depicts the realization of this vision through the To-Be Entity Flows.

- The entity flows were created to show FSA functioning in the To-Be Target State Vision. They depict a To-Be enterprise which inherently provides reliable cross-system analytics, increased program integrity, reduced administrative costs, enhanced capital management, and improved customer service.

## **1.5 Assumptions**

This deliverable has made the following assumptions in the creation of a Framework Specification for FSA:

- While this document presents flows and diagrams narrated in the present tense, they are presenting To-Be concepts and should not be interpreted as current state.
- This document provides a high level framework vision for the business and data architecture of FSA. Implementation details for this framework are not specified in this document and must be further explored and developed in future work.
- Deliverable 123.1.2 As-Is System Data Flows is a snap-shot of the enterprise at a point in time. The gaps identified from this snap-shot and utilized in this Data Framework Specification will have to be re-examined to understand their impact on implementation.
- The business architecture components defined in this document have been composed with FSA system and business architects. It is assumed that upon FSA review, this list is the most accurate and up to date list possible in the current timeframe.
- Although this document presents changes to the As-Is business and data architectures, it does not explore the potential impacts to the organization.



## 2 Data Strategy Background Inputs

### 2.1 FSA Enterprise Functions

FSA is a complex environment with multiple functions working together, creating an enterprise capable of supporting a number of core business processes. These processes were identified in the As-Is System Data Flows Deliverable as Applicant/Borrower Processes (Aid Education, Submission, Eligibility, Repayment, Consolidation, and Collections) and Trading Partner Processes (Partner Application, Origination and Disbursement, and Oversight). The processes and their underlying functions are essential to the enterprise. Defining the processes as part of an As-Is analysis allowed them to be transposed to the To-Be vision outlined in later sections of this deliverable.

The following table provides a listing of the key processes identified during the As-Is System Data Flows effort and their underlying functions and systems.

Life Cycle Phase	Process Step	Key Internal System(s)	As-Is FSA Enterprise Functions
	Aid Education	CPS (FAFSA), Portals	Provide Aid Education Information
		Submission	CPS (FAFSA)
		CPS, PIN	Process ED PIN requests & distribute ED PIN
Eligibility		CPS	Send/Receive from matching agencies (SSA, SS, INS, etc.)
		CPS, COD, NSLDS	Match against NSLDS student data (FAH)
		CPS	Computation Edits - EFC
		CPS	Generate ISIR/SAR
		CPS, NSLDS	Distribute Eligibility
		CPS	Distribute ISIR
		CPS	Distribute SAR
	NSLDS	Perform requested Transfer Monitoring	
	Origination & Disbursement	COD	Process Promissory Notes
		COD	Receive and Validate Direct Loan and Pell Originations
		COD	Receive and Validate Direct Loan and Pell Disbursements
		COD, FMS	Substantiate Federal Aid Payments to Schools
		COD, FMS	Manage Funding Levels
		COD	Run PLUS Borrower Credit Check
		FMS	Process State Agency LEAP/SLEAP
		eCB, FMS	Process FISAP/Campus Based Funds
		NSLDS	Manage Grant and Loan Tracking (disbursement, payment, overpayment) for FFEL, Direct Loan, Pell Grant, and Campus Based Aid
NSLDS	Manage Transfers records for FFEL, Direct Loan, Pell Grant, and Campus Based Aid		



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Life Cycle Phase	Process Step	Key Internal System(s)	As-Is FSA Enterprise Functions	
 <p><b>Institution Participation</b></p>	Partner Application	PEPS	Process School Application to participate in Title IV programs (eAPP)	
		eCB	Process School Application to participate in Campus Based programs (FISAP)	
		FMS	Process Lender Application & Provide LID for new eligible lenders	
		FP Channel Updates, FMS, PEPS, NSLDS	Process GA & State Agency participation changes (State Governor or Non-Profit letters initiate)	
		PM, SAIG	Process initial partner enrollment	
		PM, SAIG	Process enrollment change requests	
		PM, SAIG	Distribute participant file	
	Oversight	All Systems	Maintain Partner Relationships	
		PEPS	Recertify Institutions	
		PEPS	Distribute Institution Eligibility/Review Information	
		FMS (LaRS)	Modify Lender Profile Information and Lender Status	
		eZ-Audit	Process Institution Financial Statements	
		eZ-Audit, PEPS	Process Institution Audits	
		PEPS	Process School Eligibility changes (including accrediting agencies)	
		PEPS, FP Data Mart	Monitor Partners (Case triggers, program reviews, risk scores)	
		NSLDS, PEPS	Establish and Distribute Default Rates (CDR)	
		NSLDS, FMS	Process Partner Invoice (GAs – AMF, LPIF, Forms 2000, and Lenders – 799)	
		COD, eCB	Process Schools' ACA Payments	
		 <p><b>Servicing</b></p>	Repayment	NSLDS
NSLDS	Collect and Maintain SSCR information			
NSLDS, DLSS	Perform Entrance & Exit Counseling			
DLSS, COD, DLCS, DMCS	Initiate Loan Servicing/Book Loans			
DLSS	Setup ICR plan - Validate Borrower income via IRS			
DLSS, NSLDS, CMDM	Maintain Borrower Enrollment & Loan Status			
DLSS	Produce Borrower Bills			
DLSS, FMS, CMDM	Process Borrower Remittance			
DLSS, Delinquent Loan DM	Manage Delinquency			
CDDTS, DLSS	Track Conditional Disability Discharges, Death, Bankruptcy			
Consolidation	DLCS			Process Applications for Consolidation
	DLCS			Run PLUS Borrower Credit Status Check
	DLCS		Certify Underlying loan information	
	DLCS		Underwrite P-Notes/Establish Consolidated Direct loan	
	DLCS, FMS		Pay Off underlying loans	
	DLCS, FMS		Set up partner EFT Accounts	



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Life Cycle Phase	Process Step	Key Internal System(s)	As-Is FSA Enterprise Functions
	Collections	DMCS	Receive Assigned Loans/Establish Collection Account
		DMCS	Assign Defaulted Loans to PCA's
		DMCS, FMS	Perform Normal Collections & Handle Remittance
		DMCS	Perform Forced Collections (TOP - Treasury Offset Program, Wage garnishments)
		DMCS	Notify/Report Default Information
		DMCS	Perform Skip tracing
	All	Various Systems, Ombudsman	Analytics and Research
		FMS	Financial Management Functions and GL Accounting
		Various Systems	Edit Checks
		Various Systems	Authentication & Access Management (Access Control & Identity Management)

**Table 1: As-Is Enterprise Functions**

The To-Be mapping of these functions is addressed in Section 4: FSA Future-State Data Architecture. This data architecture provides a To-Be picture of an Enterprise plan for optimizing the integration of FSA’s systems and underlying functions, so FSA can realize maximum efficiency in its business processes. While the functions principally remain unchanged, the methods and levels of function and system integration, standardization, and consolidation determine the effectiveness of the enterprise. With an understanding how their current processes and functions help to create the Enterprise Vision, the Business Owners will be better equipped to guide their efforts in developing their part of a cohesive enterprise solution.

**2.2 Business Objectives**

A strategy is defined as a plan, method, or series of actions designed to achieve a specific goal or objective. Without clearly defined objectives, any actions or efforts to improve a business or enterprise will be inefficient and largely unsuccessful. The goals for the FSA enterprise and its Data Strategy have been developed by FSA management and key business owners. These goals have been refined and clarified through business objective meetings conducted by the Business Integration Group and Data Strategy Team. The plan and method for accomplishing these objectives were initially outlined in action item #16 of FSA’s Risk Plan and have subsequently been developed through the multiple Data Strategy deliverables, cumulating in the creation of this Data Framework Specification deliverable.

The end goals defined for FSA’s Data Strategy are overall improvements in the areas of data quality and data consistency. FSA is focused on its enterprise wide approach for streamlining and integrating systems to ensure that accurate and consistent data is exchanged between its customers, partners, and compliance and oversight organizations. The following program-wide business objectives were identified as essential components for achieving this goal:

- Integrate FSA systems and provide new technology solutions



- Reduce redundant data storage
- Improve products and services to provide better customer service
- Increase accuracy of analytics
- Increase efficiency in data handling
- Reduce program administrative costs
- Remove FSA from the GAO high-risk list
- Maintain a clean audit

FSA’s Business Integration Group expounded upon these objectives and formulated the Vision Framework. Below is an excerpt from the Vision Framework; to view the framework in its entirety see Appendix B.

FSA Strategic Objectives			
Integrate FSA systems and provide new technology solutions	Improve program integrity	Reduce program administrative costs	Improve human capital management
Improve products and services to provide better customer service			
Core Business Driver			
Find the Right Balance Between Efficient Delivery & Effective Oversight			
Core Business Outcomes			
Provide Easier Access to Make it Easier for Our Customers to do Business With Us	Maintain Right & Effective Levels of Oversight Through Combination of Enhanced Tools & Customer Self-Monitoring	Run the Business to Enable Right Actions, Right Transactions to the Right People	
Easy customer access to required information throughout the delivery cycle	Easy and timely access to required oversight information	Ability to proactively inform regulatory and statutory changes	
-CSID implementation across the lifecycle	-Enterprise (cross-functions) information and analysis	-Simplify programs through proactive informing to policy and legislative processes	
-RID implementation across the lifecycle	-RID implementation across the lifecycle		
-Better common loan identification	-Customer centric buildup for schools across the lifecycle		
-Provide an integrated, cross-lifecycle, web-delivered customer view that is system independent	-Delivery partner access to information to support self-monitoring and decision making		
-Customer centric buildup for students across the lifecycle			
-Provide information to prospective students			
		Actionable data to drive decision making	
		-Right data available at right time and organizational agreement about what is required and when	

**Table 2: FSA BIG Vision Framework**

In the Vision Framework diagram, FSA’s Strategic Performance Plan Objectives were used as the basis to further define FSA’s Business Owners’ objectives:

- Integrate FSA systems and provide new technology solutions
- Improve program integrity
- Reduce program administrative costs
- Improve human capital management
- Improve products and services to provide better customer service

The Core Business Driver for these objectives was defined as “Find the right balance between efficient delivery and effective oversight.” Within the framework itself the correlations between various Core Business Outcomes and Core Business Enablers were established. For example, the RID implementation is grouped with the Core Business Enabler, “Support Effective and Informed Decision Making by Making the Right Information Available at the Right Time to the



**Data Strategy Enterprise-Wide  
FSA Data Strategy Framework  
Data Framework Specification**

Right People.” The chart indicates that the Core Business Outcome that is enabled is the capability to “Provide Easier Access to Make it Easier for Our Customers to do Business With Us.” These relationships between outcomes and enablers establish the foundation for constructing a viable target state vision that is capable of achieving FSA’s strategic objectives.

While the Vision Framework encompasses all aspects of FSA, the Data Strategy team was tasked with focusing on the enterprise’s data. In order to further define the Data Strategy role in establishing FSA’s Vision Framework, the Data Strategy team conducted a number of business objective meetings. Key stakeholders across all phases of the Student Aid Life Cycle gathered at each meeting, and the business owners were challenged to highlight their greatest priority and identify a corresponding business objective that would improve FSA’s business capabilities.

In order to facilitate their incorporation into the various data strategy efforts, the objectives obtained from these meetings were then categorized into logical groupings: High Level, Internal Data, External Data, Web Usage, Web Services, Data Storage, and XML Framework. The following table lists the objectives determined to be relative to all of the Data Strategy efforts and as such defined as “High Level;” the remaining objectives are listed in Appendix C: Data Strategy Business Objectives.

Business Objective	Details
Make it easier for customers to do business with FSA.	<ul style="list-style-type: none"> <li>- Foreign school/student considerations -- currently precluded from some exchanges.</li> <li>- Provide good customer service.</li> <li>- Move capabilities to the web</li> <li>- Performance equal to that of commercial services</li> <li>- Improved Customer Recognition and Customer Tracking / Data Searches</li> <li>- EDEXpress moved to the web (web accessible only)</li> <li>- Continue to provide more services via web</li> <li>- A method for schools to import/export data in a variety of ways (batch, web, bulk updates)</li> <li>- Results of (NSLDS) post screen initiates communication to school rather than CPS</li> </ul>
Intelligently combine technology and process to Increase Business Decision Efficiency by providing the right data, with the right security levels, to the right people at the right time.	<ul style="list-style-type: none"> <li>- Increase access to data (some data is not available without being charged)</li> <li>- Identifying the system for finding certain types of information.</li> <li>- NSLDS - Real-Time Feeds</li> <li>- Real / right time access for External Agencies, (SSA, INS, State Agencies, etc.)</li> <li>- Balance use of COTS versus Demands of Enterprise Standards</li> <li>- Cost effective implementation of technology in compliance with Government standards</li> <li>- Share certificates with external sites (shared authentication/credentials with Third Party)</li> </ul>
Need to clarify who is the owner/steward of the data at various times throughout the FSA Aid Life Cycle.	<ul style="list-style-type: none"> <li>- Naming/Ownership of Data and business processes - Establishing ownership of FSA's data.</li> <li>- Standardizations/classifications on stewardship - who can push the data?</li> <li>- Leverage previous data gathering by identifying data creators / updaters and referencing those data instances</li> </ul>
Need to develop policy standards, and clearly defined common identifiers for sharing data across the enterprise and compliance with federal regulations	<ul style="list-style-type: none"> <li>- Align PIN with the CSID</li> <li>- Need a common / centralized identification system and governance rules to administer data exchange with customers</li> <li>- ID's need to be user friendly</li> <li>- Current ID structure does not enable schools to truly receive the data they want the way they want it</li> <li>- Facilitate compliance with federal regulations (specifically financials)</li> </ul>



**Data Strategy Enterprise-Wide  
FSA Data Strategy Framework  
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Business Objective	Details
Provide an integrated, cross-Life Cycle, web-delivered customer view that is system independent.	<ul style="list-style-type: none"> <li>- Integrated Student View</li> <li>- Reduce multiple ways to access the same entry point (simple urls – i.e., Portal). Show everything you have related to the user that has signed in (based on point in Life Cycle) (once a user has “hit” the PIN the system should know who you are.)</li> <li>- Only provide data to customers that are specific to their individual needs. Systems should make specific decisions on what to display regarding all the information that is available. (No one should know everything FSA has.)</li> <li>- Web accessible searchable data / information repository</li> <li>- Give Students and FAAs a full snap shot of where the customer is in the Life Cycle – ED needs that type access as well (single managed point)</li> <li>- Web Services and Web Usage High- Level Objective</li> </ul>
FSA needs to establish and follow common data definitions to facilitate the exchange of data internally and externally.	<ul style="list-style-type: none"> <li>- Significant Digits which includes requiring that pennies be a standard on dollar fields</li> <li>- There is a need for external systems to be able to handle loans that are greater than \$99,999.99 in value.</li> <li>- FSA is held back from making changes to data formats because of the trading partners' inability to correctly adapt to those changes (resistance/lack of ability).</li> <li>- Business processes cannot be adversely affected by standardization/common edits, but must have enough edits to enable business process.</li> <li>- There is a need for an enterprise wide data dictionary because more than one system edits the same data differently</li> <li>- Be able to merge applicant and payment data as soon as the payment data comes in (for processing and analytics)</li> <li>- FFEL information improved based on ISIR               <ul style="list-style-type: none"> <li>o Nobody makes sure that there is an ISIR for FFEL data (Goal = Award FFEL loans based on an ISIR)</li> <li>o Pass through COD</li> </ul> </li> </ul>
Right-Time Data Exchange between systems	<ul style="list-style-type: none"> <li>- NSLDS - Real-Time Feeds</li> <li>- State Agencies</li> <li>- Real time availability of ISIR data updates to schools' systems (School real time updates of student and school data)</li> <li>- Real-time access between systems (NSLDS data gets outdated very quickly for CPS)</li> </ul>
Infrastructure Capacity that is scaleable and flexible to meet the changing needs of FSA.	<ul style="list-style-type: none"> <li>- Take into consideration the technical needs of a data exchange size before implementing new technologies or methods of transport -- for instance, do not impose a format if the size of data being shared cannot be supported.</li> <li>- Provide data imaging standards and capacity considerations.</li> </ul>
FSA needs to establish a common method for administering trading partner enrollment and access to FSA Systems and Resources.	<ul style="list-style-type: none"> <li>- Single point of access and sign-up for Enrollment with FSA Systems</li> <li>- Requires a certain degree of access management - share some type of credentials across the systems</li> <li>- FSA needs to establish a common place for school access and enrollment</li> </ul>
Document and communicate vision.	<ul style="list-style-type: none"> <li>- Having common definitions that are agreed upon and communicated.</li> <li>- Communication of architectural decisions and joint decision-making. Timely communications with partners when changes will occur, giving trading partners time to prepare for changes.</li> </ul>

**Table 3: Data Strategy High Level Objectives**

In order to fulfill these goals and objectives, a plan was needed. FSA business owners recognized this fact and dictated the need for an enterprise-wide plan in Action item #16 of FSA’s Risk Plan, stating that it was essential to “define an enterprise-wide data strategy and high-level implementation approach that addresses the business flow of data across the enterprise, architecture, primary ownership, standards, management, access methods, and quality.” FSA then gave the Data Strategy team the task to create this “enterprise-wide data strategy.” The Data Strategy team began by developing the framework and requirements for this strategy effort by delivering the Statement of Strategic Data Focus Areas, As-Is System Data Flows, and Data Quality Mad Dog Report. Then with the creation of this deliverable, the Data Framework Specification, and the Data Strategy Framework team established the future state



business and data architecture plans that will provide the overall outline for establishing a target state that fulfills the enterprise’s goals and objectives.

### 2.3 Mad Dog Recommendations

The Data Quality Mad Dog Report highlighted the high priority data quality issues facing the Federal Student Aid (FSA) enterprise. Addressing and ultimately resolving these issues is the first step towards enabling the delivery of more accurate and reliable data. The recommended solutions for the Top Ten and Quick Hit issues detailed in Deliverable 123.1.3 – Data Quality Mad Dog Report, were taken into consideration during the brainstorming process to ensure that the target state architecture would address these issues and deficiencies.

A mapping spreadsheet that matches the issue recommendations with the proposed FSA Future-State, can be found in Appendix D. Below is one of the issues found in this spreadsheet. The fifth column in the spreadsheet maps the Mad Dog issue to the target state vision concepts that address the given issue. For example, the issue below states that, “There is no ability to pull data from systems across the Life Cycle to present a single, integrated student view complete with the current status of a student's aid and workflow indicators relative to that student.” The fifth column indicates that this issue is addressed by the To-Be concepts of the Central Data Architecture’s (CDA) shared data and the SSIM shared function. These concepts are presented in greater detail in Sections 3 and 4 of this document.

Grouping	Issue	Recommendation	As-Is: Associated Life Cycle Stage and Systems	To-Be: Target State Vision Concepts that addresses the Issue	Cross Reference to FSA Vision Framework (Core Business Outcomes and Enablers)
Common Identification Methods	There is no ability to pull data from systems across the Life Cycle to present a single, integrated student view complete with the current status of a student's aid and 'workflow' indicators relative to that student	Implement a Standard Student Identification Method (Shared Functions - SSIM) and create a data warehouse/central repository that holds student data from across the enterprise and Life Cycle stages.	<b>Life Cycle Stages</b> Application, Institution Participation, Delivery, Servicing <b>Systems</b> All	<b>Key Concepts</b> CDA shared data, Shared Functions - SSIM <b>Business Capability Areas</b> All	<b>Core Business Outcome</b> Maintain Right and Effective Levels of Oversight Through Combination of Enhancement Tools and Customer Self Monitoring <b>Core Business Enablers</b> Support Effective and Informed Decision Making Information Available at the Right Time to The Right People

**Table 4: Mad Dog Mappings**



### 3 FSA Future-State Business Architecture

When mapped out, a business architecture should show a picture of how an enterprise accomplishes its mission. Accordingly, the components of FSA’s Business Architecture should illustrate how the delivery of Title IV aid is managed and monitored. These components are the business capability areas (high level divisions of FSA’s business) and business functions (the duties for which a business area is responsible). Together the business functions create both the student/borrower and trading partner business processes defined by the FSA Financial Aid Life Cycle.

The Business Integration Group’s FSA Business Functions View Diagram served as the initial foundation for defining these business functions and components. Building on this foundation, the As-Is system flows were mapped to the To-Be architecture to ensure no functionality was disregarded in the future state visioning. Finally, through an iterative approach and a series of visioning retreats, the business capability areas and functions were refined cumulating in a Function Matrix which outlines the framework for FSA’s Future-State Business Architecture.

As shown below, the definition of this Business Architecture represents the first step towards reaching the Target State Vision, but it is also refined throughout the subsequent steps.

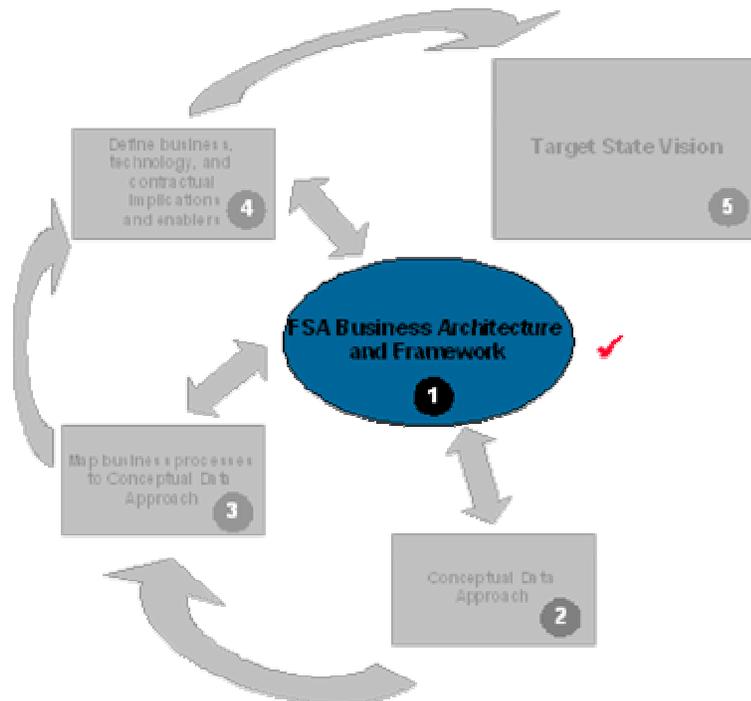


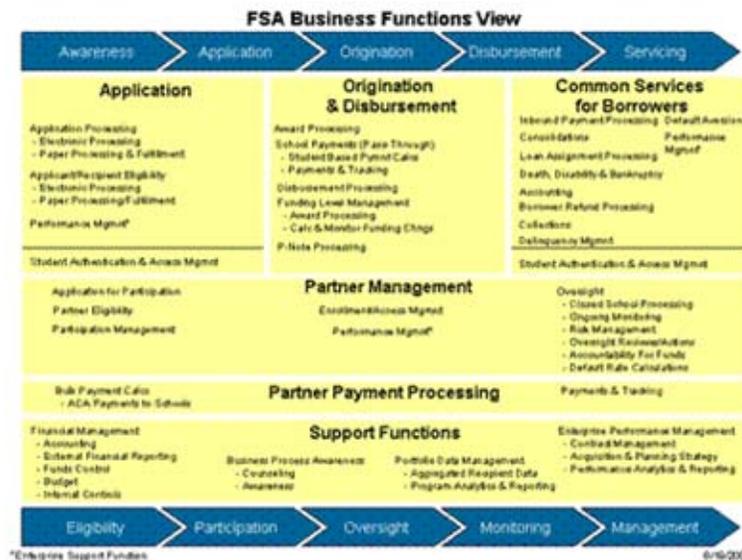
Figure 2. Step One in the Process to Define Conceptual Target



### 3.1 FSA Business Functions View Diagram

In order to help define and validate the mapping of these business capability areas and functions, the Data Strategy team consulted with FSA's Business Integration Group. BIG is made up of representatives from across the enterprise/business channels and FSA's Integration Partner. They meet to discuss and analyze FSA integration projects and topics that span the enterprise. These discussions are held in order to determine impacts to FSA's business, technical, and data architectures, ensure alignment to the enterprise vision definition and monitor the progress of integration initiatives. This group also identifies and makes recommendations to address gaps within current and future business integration projects, informs the enterprise sequencing plans and manages dependencies and risks across FSA's system development efforts.

One of the key efforts conducted by the Business Integration Group was the creation of the FSA Business Functions View Diagram. This diagram was created through a series of Business Integration Visioning meetings, which defined the enterprise's business capability areas and business functions. Please refer to Appendix E: Target State Business Architecture Diagram and Appendix J: FSA BIG - Meeting Minutes for details regarding meeting times, attendees, major discussion points, and a full-sized version of the diagram.



**Figure 3. FSA Business Function View Diagram**

The FSA Business Functions View Diagram consists of yellow sections that represent the Business Capability Areas and their business functions, and blue chevrons that represent the business processes. The FSA Business Capability Areas combine common or similar processes and resources to streamline FSA's current Business Architecture.



### 3.2 To-Be Business Architecture System Mappings

The To-Be Architecture System Mappings spreadsheet (An excerpt of the matrix is shown here. See Appendix F – To-Be System Mapping for the entire diagram) serves as a crosswalk between the current and future business architectures. It maps the current FSA systems to the To-Be Business Capability Areas as detailed in the FSA Business Functions View Diagram, which is explained in Section 3.1 of this document. For example, CPS is cross-walked to the Application Business Capability Area and the Application Processing / Applicant/Recipient Eligibility Business Function because the current functions present in CPS are reflected in Application in the future.

	FSA Related Systems	Internal (i) or External (x) system to FSA	Brief Description of Involvement	As-Is Business Process Step	To-Be Business Function
Business Capability Area: AID AWARENESS & APPLICATION	PIN	i	Applicants/Borrowers apply for a PIN in order to sign documents (such as the FAFSA and Master Promissory Notes) electronically.	Submission	Enrollment & Access Management
	FAFSA on the Web (SFOTW, ROTW, COTW, FAA Access)	i	Applicants use the FAFSA Web Site to fill out and/or submit their Free Application for Federal Student Aid. They can also view their SAR (Student Aid Report) via this Web Site.	Submission	Application Processing
	CPS	i	CPS receives applicant FAFSAs and determines/distributes applicant eligibility information. Also includes IDC Imaging.	Submission/ Eligibility	Application Processing/ Applicant/Recipient Eligibility
	Participation Management	i	Participation Management helps to enable ISIR distribution to schools, State Agencies, and guaranty agencies.	Eligibility	Applicant/Recipient Eligibility
	NSLDS	i	NSLDS is responsible for compiling and updating students' Financial Aid History and provides this information to CPS and Schools during the eligibility determination process.	Eligibility	Applicant/Recipient Eligibility

**Table 5: To-Be Business Architecture System Mappings**

This table displays how FSA systems map to the To-Be business capability area by defining whether the As-Is system is Internal or External to FSA, a brief description of the mapping, and how the existing process steps used in Deliverable 123.1.2 – As-Is System Data Flows map to the new process steps of the enterprise vision. By illustrating how the As-Is Business sub-components are translated to the new To-Be vision, this mapping verifies that each aspect of FSA’s current business functionality is captured in the new vision. It also allows consolidation of similar business functions for a new vision and demonstrates the redundant business functions of the current architecture.



### 3.3 To-Be Function Matrix

The Function Matrix represents the cumulative efforts of the Business Integration Group and Data Strategy teams. This matrix forms the framework for a To-Be business architecture. This target state is an evolution from performing system-centric task to enabling integrated business processes. Although the enterprise’s functionality (See Section 2.1 for As-Is matrix) remains mostly unchanged as this evolution occurs, the functions change from being joined by a network of interfaces and transfers and assigned to disparate systems, to becoming fundamental elements of integrated Business Capability Areas. Furthermore, functions which are common to more than one Capability Area or which a customer may also execute become “Shared Functions,” ensuring the logic is consistent and commonly used throughout the enterprise.

Below is an excerpt from the Function Matrix. This excerpt shows the O&D Business Capability Area with its functions groupings and underlying functions. Appendix G provides the complete matrix.

Business Capability Area (Green Box)	Enterprise Function Grouping	FSA Enterprise Functions	As-Is Mapping
			Key Internal System(s)
O&D	Award and Disbursement Processing	Receive and Validate Direct Loan & PELL Originations	COD
		Receive and Validate ALL Title IV Disbursements	COD, NSLDS
		Receive and Validate Transfers records	NSLDS
	School Aid Payments & Funding Level Management	Substantiate all Title IV Federal Aid Payments to Schools	COD, eCB, FMS
		Manage Funding Levels	COD, FMS

**Table 6: Target State Function Matrix**

The Business Capability Areas in this matrix reflect the Business Areas defined by BIG, shown in the FSA Business Function View diagram (See Section 3.1). However, there are a few modifications. To add more clarity, FSA’s business owners divided the Support Function Business Capability Area into two distinct areas: Financial Management and Enterprise Analytics and Research. Also, as previously mentioned, a number of the functions were defined to be “Shared Functions.” The following is a complete list of the Business Capability Areas:

- Application
- Origination and Disbursement
- Trading Partner Management
- Partner Payment Management
- Common Services for Borrowers
- Enterprise Analytics and Research
- Financial Management



The Business Capability Areas are intended to group FSA's work into logical organization units. They include one or many cross-functional systems that take advantage of commonalities and reuse resources for similar business functions. These units are comprised of similar business process steps that use much of the same process logic and data. Creating the capabilities in this way reduces data transfer and, by doing so, reduces the potential for data discrepancies and data unavailability. Consolidating capabilities also increases the overall quality of FSA's data and calls for less duplicate reporting, thereby easing the burden on entities that must provide data to FSA, i.e., persons (students, borrowers, parents), schools, and financial partners (GAs, lenders, and State Agencies).

The following sections give a brief description of each of the Business Capability Areas and their primary To-Be responsibilities. Throughout this section, items are *italicized* to highlight some of the new target state concepts.

### 3.3.1 Application (APP)

The Application Business Capability area performs three key tasks: providing aid education information, establishing the person record, and determining aid eligibility. Aid education is the first step in educating students about available financial aid options. Through Student Aid on the Web, users create a MyFSA account, the first information collection step, and can use their account to determine eligibility and interest in careers, colleges, scholarships, and financial aid. The MyFSA account can be accessed and maintained through the Financial Aid Life Cycle, from applying all the way through to repaying. The information provides the first glimpse into applicants and potential applicants.

The second task, establishing the person record, entails receiving the application and processing ED PIN requests and distributing the ED PIN. *All potential borrowers/recipients, including Parental Loan Underwriting for Students (PLUS) Borrowers, Federal Family Education Loan (FFEL) Borrowers, and Campus Based Aid Recipients, are required to submit an application for Title IV student aid to FSA using the Free Application for Federal Student Aid (FAFSA) or an equivalent application.* Whether data is collected during the Aid Awareness Life Cycle Phase or when a person submits a FAFSA, APP is the only business area given this capability to establish the Person Entity record within FSA. However, once the record is established, other areas can view and update the data throughout the Financial Aid Life Cycle, including the student via Student Aid on the Web. The student's interaction is facilitated by the ED PIN, which serves as an electronic signature and authentication tool that is available to the entire enterprise as a Shared Function.

While the APP is tasked with determining the initial aid eligibility, the functions are "shared" and are available to other capability areas and customers as enterprise services or common, integrated logic. For example, there is common logic available to perform edits checks on enterprise shared data. There is also shared functionality which provides eligibility matches with external agencies and internal financial history data. These eligibility results are accessed by other internal business areas and are distributed to the applicant, via the Student Aid Report (SAR), and to schools and other financial aid partners, via the Institutional Student Information Record (ISIR).



### 3.3.2 Origination & Disbursement (O&D)

Origination & Disbursement is the process of receiving aid award student and school level detail records, processing promissory notes, distributing funds associated with these awards, and managing the delivery of the aid awards. The Origination & Disbursement Business Capability Area involves various external partners, such as schools, *Guaranty Agencies (GA)*, and *lenders*. Student aid is originated by schools with the help of FSA and Financial Partners. Schools are responsible for reporting award information about Direct Loans, Pell Grants, and Campus Based aid to FSA, while Financial Partners are responsible for communicating FFEL awards.

Just as APP is the single point within FSA for establishing the person record, O&D is the single point for establishing the aid record, except for Consolidated Direct Loans, which are established by CSB. *To ensure FSA is able to accurately calculate loan limits, all underlying loan amounts and loan types are required to be reported for Consolidated FFEL Loans and Consolidated Direct Loans. Since CSB also originates loans, a Shared Function provides a common means for processing promissory notes.* Once the aid record is established, updates are made by schools (Perkins Loans), Financial Partners (FFEL Loans), and CSB (Direct Loans, Consolidated Direct Loans, defaulted loans, and grant overpayments) throughout the Servicing Life Cycle Stage.

Origination and disbursement records for Direct Loans, Pell Grants, and Campus-Based aid are received on the Common Record and validated by O&D. *For FFEL loans, GAs or Lenders submit record of the disbursement information (Note: while not included as part of the target state vision, the FFEL loan originations have the potential to also be included and validated on the Common Record and reported by schools).*

Since FSA provides funds for Direct Loans, Pell Grants, and Campus-Based aid, they are responsible for the accounting of these funds; schools are required to justify the distribution of this aid with FSA. Therefore, Origination & Disbursement not only encompasses aid awards and disbursement processing, it also includes funding level calculations and management. The funding levels control the funds that are available for the school to drawdown in the Grants Administrative and Payment System (GAPS). They are also used to monitor the funds that are available/used at the Program level and ultimately Congressional appropriations.

For Pell Grants and *Campus Based Aid* the funding level is tied to the Program allotment, however for Direct Loans is it more of a floating cap used to monitor the amounts the schools can drawdown. For “Pushed Cash” schools the Direct Loan funding level is initially set to zero and is increased as disbursement transactions are processed. For “Advanced Funding” schools an initial Direct Loan funding level is set that can be drawn down at any time. If the school disburses more Direct Loans than this initial amount, the funding level is effectively managed in the same manner as a “Pushed Cash” school, being increased as disbursements are processed.



### 3.3.3 Common Services for Borrowers (CSB)

This Business Capability Area deals with borrower interaction with FSA once they enter the Servicing Life Cycle Stage. Once a borrower enters the repayment process step, they are required to submit payments for their student loans to FSA. If they wish, they can consolidate their aid by submitting a consolidation application. If a borrower fails to make timely payments they become delinquent and eventually default on their loans. FSA has various methods of handling recovery and resolution including voluntary collection means, i.e., the borrower sets up a payment plan with FSA, and forced collection methods such as the Treasury Offset Program (TOP). The Common Services for Borrowers area also includes loan reassignment to a private collection agency or third-part servicer and death, disability and bankruptcy discharge processing.

Note: due to the current CSB procurement efforts, this Business Capability Area was largely undisturbed for purposes of the Data Strategy. A number of opportunities to integrate CSB functionality with other business areas may be found with further research.

### 3.3.4 Trading Partner Management (TPM)

The Trading Partner Management Business Capability Area includes functions that deal with the enrollment, eligibility and oversight of FSA's trading partners. These partners include schools and financial partners, such as GAs, lenders and State Agencies. Each of these entities must apply to participate in Title IV programs and be deemed eligible to do so. *TPM serves as the common point for this process. The As-Is application methods such as the eAPP and Fiscal Operations Report and Application to Participate (FISAP) for schools, the Lender Application Process (LAP) for lenders, and ad hoc GA and State Agency changes are all centralized and standardized into the To-Be TPM solution. TPM also provides the capability for the partners to initially enroll in FSA services and make subsequent enrollment change requests.*

Once accepted, trading partners are overseen by FSA to ensure that they remain compliant and eligible. In order to monitor the partners, TPM processes institution's financial statements and audits, receives eligibility changes from accrediting agencies, and initiates a Shared Function to calculate Cohort Default Rates (CDR). TPM also handles the partners' periodic, required recertification. As the partners are monitored, updates are made to their risk scores, funding methods, and funding controls and case triggers are initiated. The distribution of the institutions' eligibility and review information is a Shared Function, available to FSA and its customers.

### 3.3.5 Partner Payment Management (PPM)

*The Partner Payment Management Business Capability Area receives the invoicing for Trading Partner payments. These payments include, but are not limited to, Leveraging Educational Assistance Partnership/Special Leveraging Educational Assistance Partnership (LEAP/SLEAP) funding to State Agencies, Administrative Cost Allowance (ACA) payments to schools, Special Allowance and Interest Benefit payments to Lenders, and AMF, LPIF, and Claim payments to GAs. For state grant disbursements, State Agencies send LEAP/SLEAP award information, detailed*



expenditures, and refunds of unused award amounts to PPM. The other partner payment calculations are Shared Functions that can be accessed by both PPM and the customers. *Portions of the partner invoicing have the possibility for pre-population depending on the reporting requirements establish for the detailed data.* While PPM handles the initial calculation of the partner payments, Financial Management processes the invoice accounting and sends the invoice to the Department of Education/GAPS for Treasury disbursements to the partners.

### 3.3.6 Financial Management (FM)

Financial Management provides FSA all if its required enterprise-wide financial capabilities. Transactions are fed to the FM processes by other Business Capability Areas (O&D, PPM, and CSB). The transactions are largely processed at the institution level, except for a few specific borrower level activities such as borrower refunds. As FM manages the enterprise's payment and accounts receivable processing, it maintains the associated budgeting and General Ledger (GL) accounting.

### 3.3.7 Enterprise Analytics and Research (EA&R)

Similar to FM, Enterprise Analytics and Research provides capabilities that are essential across the entire Financial Aid Life Cycle. *EA&R delivers the Enterprise Dashboard and a number of other management functions for FSA, such as:*

- *Portfolio Management*
- *Default Management*
- *Risk Management*
- *Data Quality Management*
- *Enterprise Performance Management*

The Enterprise Analytics and Research Business Capability Area uses central, consolidated data to create an integrated student view and school view. With these views, EA&R enhances the analytical capabilities currently provided by NSLDS and other systems by allowing FSA to better perform comprehensive program analysis and comparative analysis at both the student and school level. These analytics help support more effective and informed decision making. For example, they may identify previously unknown trends in student and trading partners' Title IV participation, possibly prompting recommendations for policy changes.

The analytics provided by EA&R are cross-business function as well as cross-enterprise and help stream-line FSA's business processes. Oversight and eligibility triggers which previously required the labor intensive process of collecting data from various FSA systems will be executed seamlessly against a common data store. As part of the EA&R, Ombudsman case tracking has access to an integrated student view which readily provides answers to research issues.



## 4 FSA Future-State Data Architecture

A data architecture is a framework for organizing the interrelationships of data based on the missions, functions, goals, objectives, and strategies of the organization. It is the backbone and supporting structure for the business architecture. Even with a well defined and designed business architecture, the lack of a viable, effective data architecture will leave the business with limited and often misleading information, inaccurate or even flawed analytics, and inefficient processes and functions. An ideal data architecture removes the friction in the flow of data to boost performance and reduce costs.

### 4.1 To-Be Data Architecture Options

With the Business Framework defined, the second step toward reaching the Target State Vision was to develop the conceptual approach for the To-Be data architecture. As part of this step, the business owners gathered in a Target State Visioning Retreat. During this retreat the business owners contemplated the conceptual data approach and also continued to reevaluate the Business Architecture and make refinements where necessary (see Appendix K: Data Strategy Retreats - Meeting Minutes for more details on the retreat's outcome).

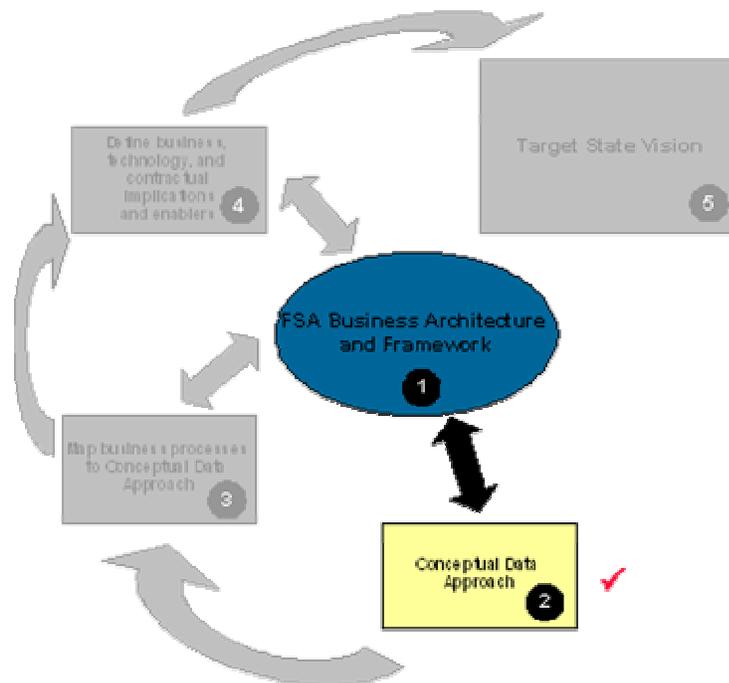


Figure 4. Step Two in the Process to Define Conceptual Target

From the FSA Business Functions View diagram and the To-Be Business Architecture System Mappings defined in Section 3, four different options (A – D) were presented as possible target



state visions for FSA’s Data Strategy. The options were presented to key cross system business owners as a continuum, moving from system centric to process centric and from unique, independent data to integrated, common data. The following diagram illustrates this continuum as well as costs for implementation and maintenance. The target option, Option D, is indicated by the red target arrow on the right.

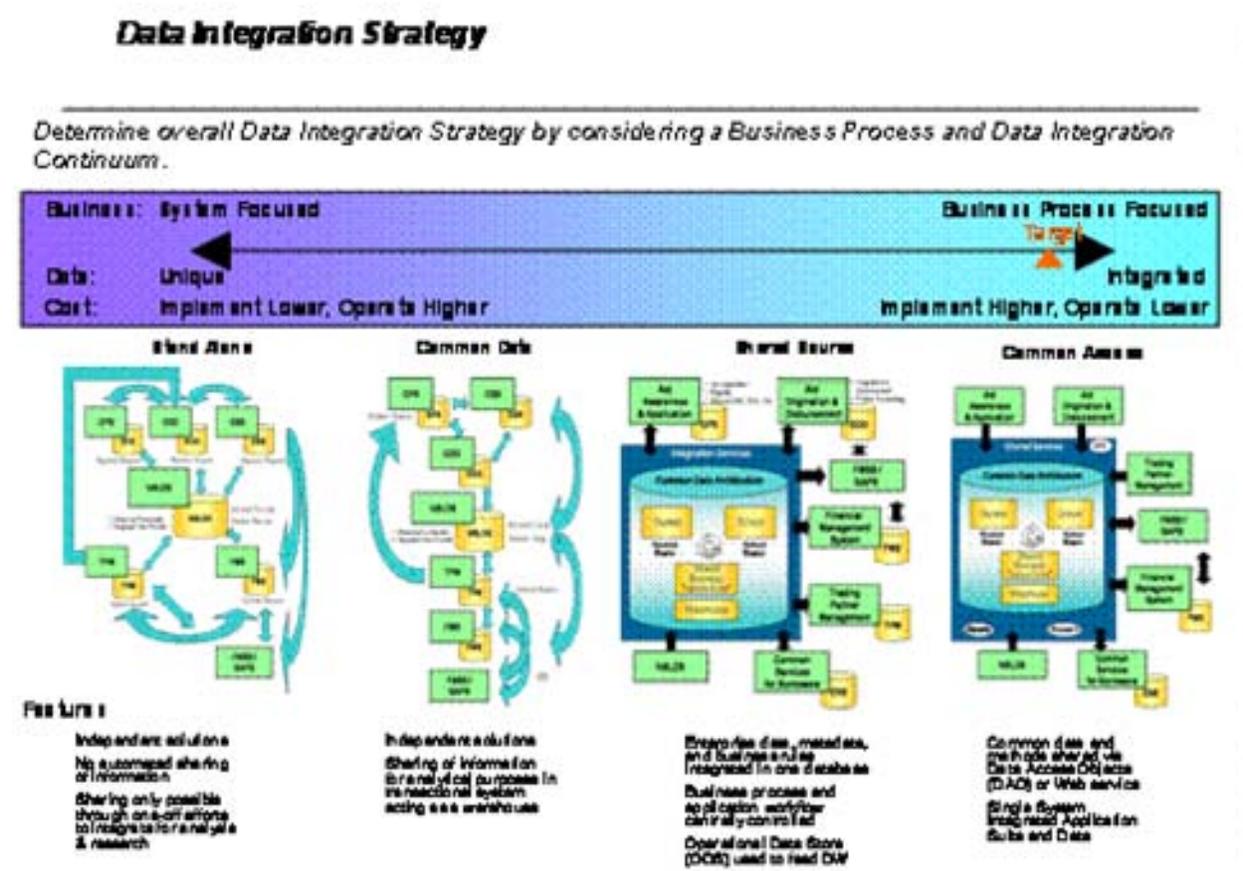


Figure 5. Data Architecture Continuum



4.1.1 Option A - Stand Alone

**Option A – Stand Alone - Multiple Transactional Systems with Multiple School and Student Sources**

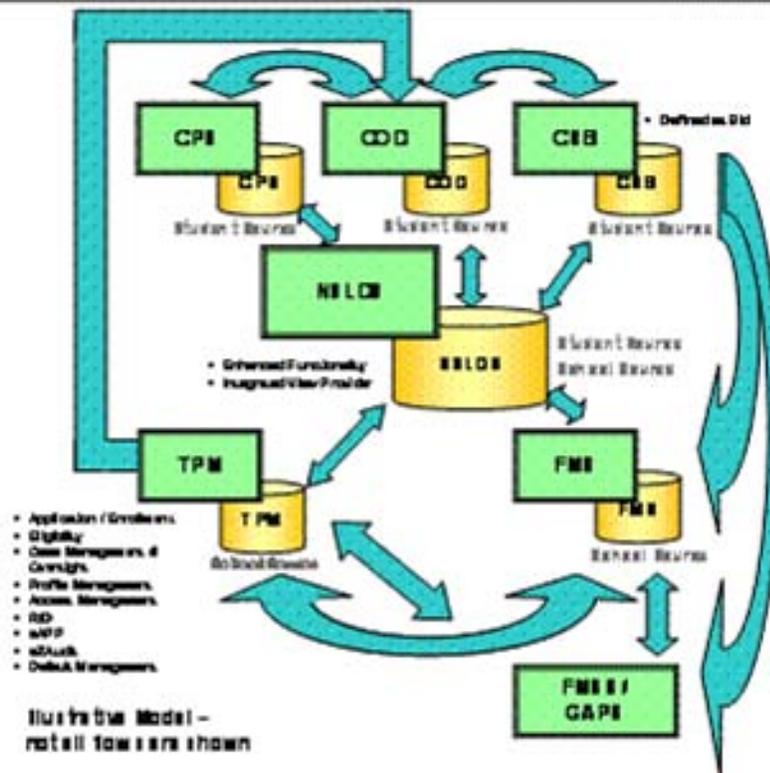


Figure 6. Data Architecture - Option A

Option A is somewhat similar to the current data architecture. Each application system maintains its own data store with data synchronization using forced updates between all systems. NSLDS provides program wide analytics and various integrated views. It should be noted that the Trading Partner Management system (TPM) is introduced in this option as a new system that consolidates components of the Post-Secondary Education Participation System (PEPS), Case Management and Oversight (CMO), ezAudit, and the Campus Based System (eCB). TPMS is the primary steward of all trading partner information (GAs, lenders, State Agencies and schools) but school data is still disbursed and updated throughout the enterprise.



4.1.2 Option B – Common Data

**Option B – Common Data - Multiple Transactional Systems  
with Single School and Student Source**

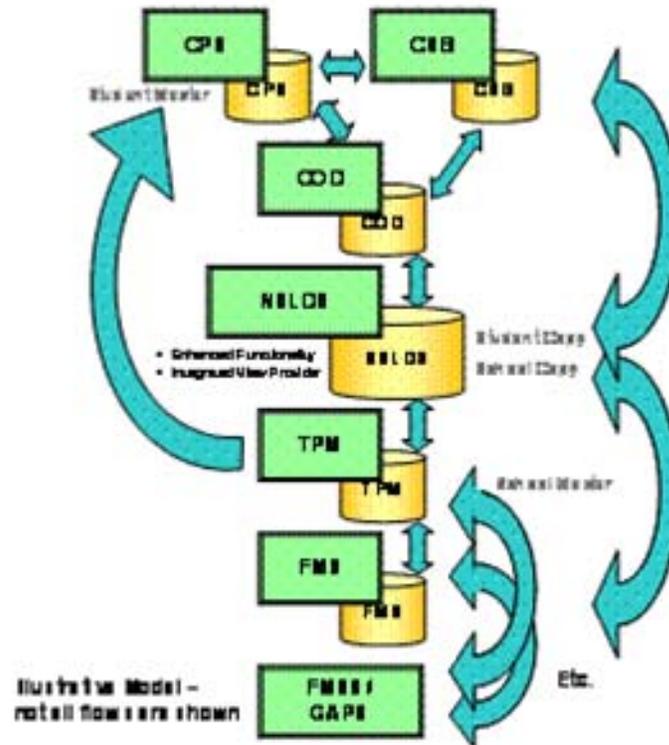


Figure 7. Data Architecture – Option B

In Option B, CPS receives student demographic data via the FAFSA and creates the initial student record. TPM receives applications from trading partners and creates trading partner records. NSLDS functionality grows larger and continues to provide the only option for program wide analytics and integrated views. While multiple systems hold student and school data, one system is selected as having the master copy. The master copy system receives allows other systems to access the data, but it maintains ownership for all updates. Although CPS is labeled as the Student Master and TPM is labeled as the School Master in the diagrammed scenario above, there are multiple candidates for the master systems (e.g., CPS, Common Origination and Disbursement (COD), CSB, and NSLD are all candidates for a single Student Master).



4.1.3 Option C - Shared Source

**Option C – Shared Source – Multiple Transactional Systems with Centralized School and Student Stores**

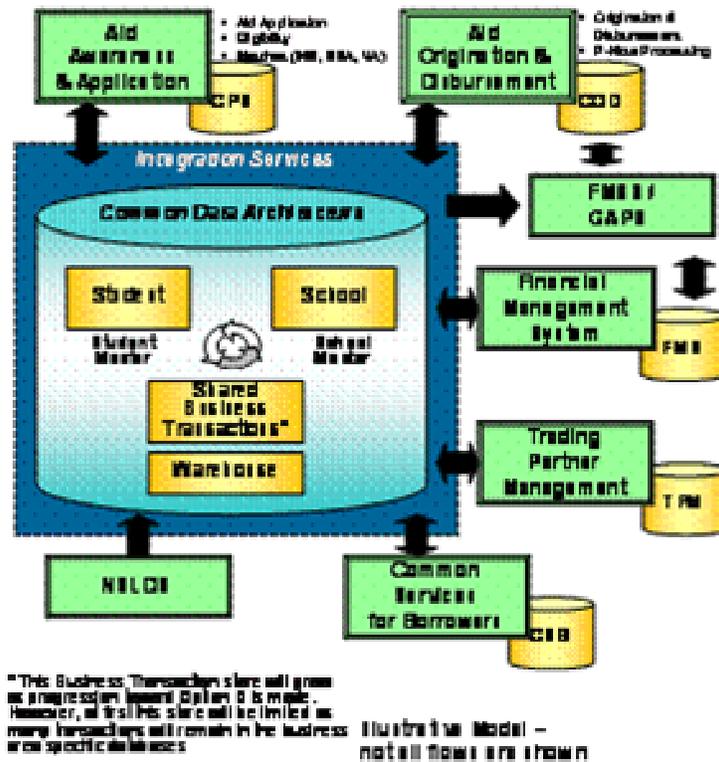


Figure 8. Data Architecture - Option C

The main feature of Option C is that all applications use the centralized student and school data stores, but retain system specific data. Systems perform business logic relevant to their life cycle stage and maintain common stores (e.g., CPS is strictly application processor, COD performs origination and disbursement, etc.). Key business processes rely on single source of student and school data. CSB and the Financial Management System (FMS) continue to act as separate transactional systems, updating the CDA to maintain a consistent view of student and school data.



4.1.4 Option D - Common Access

**Option D – Common Access – Process Reengineering  
to enable a Centralized Operational and Historical  
Warehouse**

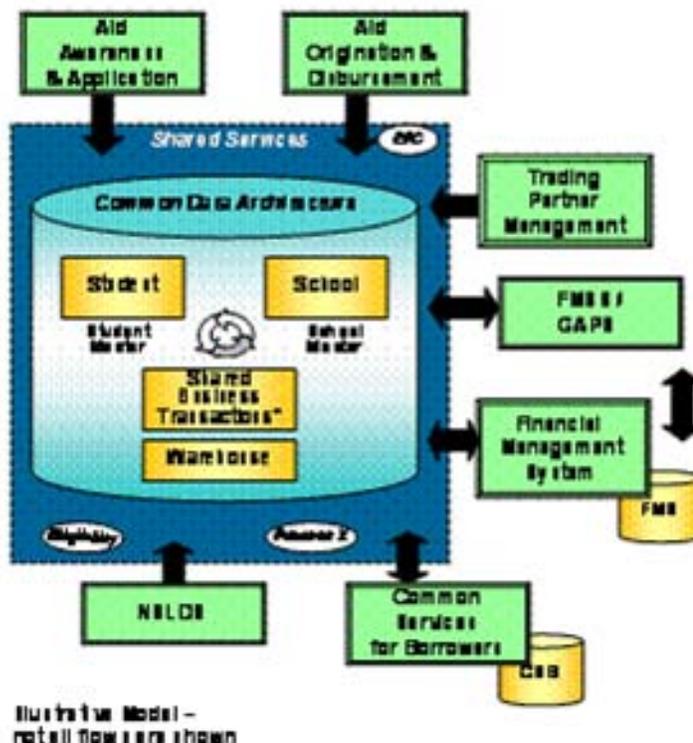


Figure 9. Data Architecture - Option D

Option D was chosen as the recommended option during the future-state visioning meetings. In this option, front-end functions share a common source of data (similar to option C, but with this option systems' data is commonly maintained in a shared database). Additionally, there is a Shared Service layer which encapsulates the Common Data Architecture and allows for sharing of business functionality among multiple systems (example: APP and O&D can both invoke an ISIR shared service upon student demographic changes or a credit check shared service can be run by CSB, FM, or APP). By consolidating data into a centralized architecture, real time access to data is facilitated and changes to data are shared by all Business Capability areas.

4.1.5 Results Achieved

The FSA Business Owners at the Target State Retreat Meetings agreed that Options A and B would not provide an adequate level of integration for the enterprise and were not desirable potential target state options. Ultimately, Option D is the Conceptual Target State Vision with Option C as a step to or a means of reaching that vision. This conclusion was reached with the group understanding that Option D is and should be the stretch goal target state, but that



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getting to that end is an iterative journey. It was duly noted that Option D involves a significant amount of reengineering of business processes to reduce redundancy within data and data exchanges. It was also agreed that an additional alternative option, where all business areas used the CDA for data storage exclusively, is hindered due to FMS and CSB utilization of Commercial-Off-The-Shelf (COTS) implementations and to the size of their respective data stores.

While the retreats focused on “visioning without constraint,” the importance of considering the costs of the target state vision was noted. Additional research will be needed beyond the current data strategy work to determine the following cost considerations:

- Reconciliation: The amount of data management needed to keep the data in sync within the enterprise. These costs can include replication costs, extract / transformation / loading costs, and reporting costs to determine data discrepancies.
- Business process changes: The real and hidden expenses of functional changes to the system.
- Resource costs: The number of resources needed to support and run the system.
- Technical architecture changes: The flexibility of the system to respond to new technology.



## 4.2 To-Be FSA Life Cycle Diagram

With the conceptual data approach established the next step toward the Target State Vision was to map the business processes to the approach. The key outcome of this step was the To-Be FSA Life Cycle Diagram.

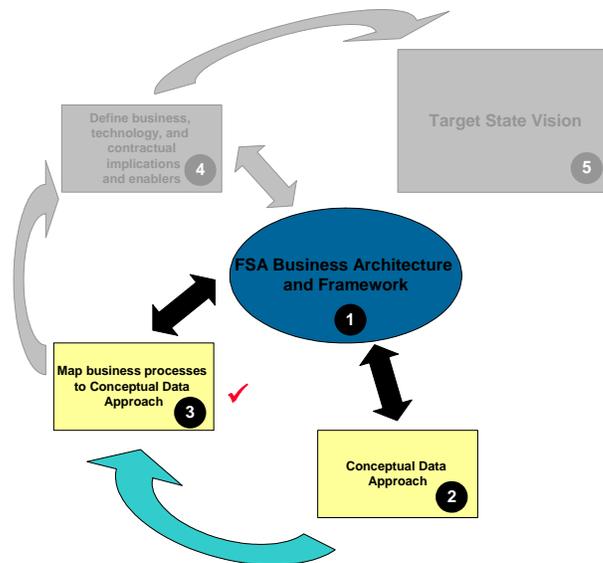


Figure 10. Step Three in the Process to Define Conceptual Target

### 4.2.1 Objectives

The To-Be FSA Life Cycle Diagram attempts to illustrate the selected Option D target state vision as the next generation of the Financial Aid Life Cycle Diagram presented in Deliverable 123.1.2 – As-Is System Data Flows. As future redesign efforts are approached, it is essential to understand to which Business Capability Areas the enterprise’s various functions are mapped and at what point in the Financial Aid Life Cycle they are a factor. The Financial Aid Life Cycle Diagram facilitates answering these questions by providing an enterprise-wide data flow synopsis and a view which depicts current FSA systems’ functions as they relate to the future Business Capability Areas.

It should be noted that while this diagram has business, technical, and data architecture components, its intent is a high level conceptual design. Further work must be done to develop detailed business requirements and a technical and data architecture design where COTS products are examined and gaps analysis are completed.

### 4.2.2 Methodology

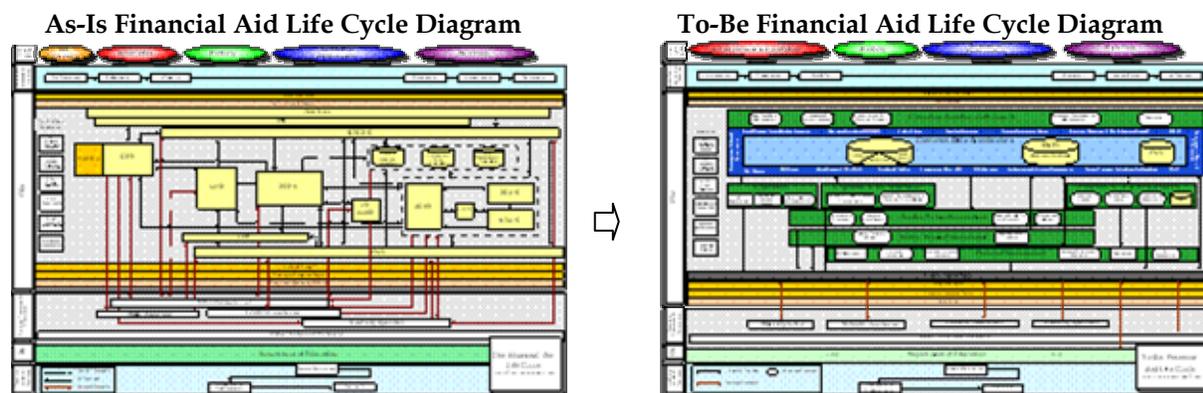
This To-Be FSA Life Cycle Diagram was developed using the As-Is Life Cycle Diagram as a baseline taking into consideration various other inputs. These inputs include: the Business



Integration Group’s work, namely the FSA Function View Diagram, other Data Strategy efforts (such as XML Strategies, Trading Partner Routing Identifiers, SSIM, Access & Enrollment, and Technical Strategies), the To-Be Data Architecture Option selection, and feedback from both FSA and Integration Partner personnel. As previously mentioned, the process of mapping the Enterprise Function Groupings (white boxes) to the Business Capability Areas (green boxes) was part of an exercise conducted in visioning retreats with key Data Strategy and BIG members.

#### 4.2.3 Diagram

The figures below depict the As-Is and To-Be Financial Aid Life Cycle Diagrams. Appendix H provides a full size version of the To-Be diagram.



**Figure 11. Change from As-Is to To-Be Financial Aid Life Cycle Diagram**

Similar to the As-Is diagram, the To-Be diagram includes the life cycle stages (the colored bubbles at the top of the diagrams) and the Process Steps (the white boxes below the colored bubble and at the bottom of the diagrams). The blue background boxes at the top and bottom depict the Applicant/Borrower Process and Trading Partner Process respectively. The legend in the lower left corner indicates what the different arrow and box types represent. In the center of the To-Be diagram, FSA’s Business Capability Areas, Enterprise Shared Functions, and Common Data Architecture are shown. The boxes below the FSA systems portray the Trading Partners and Department of Education and their interfaces with FSA via the FSA Gateway.

The Business Capability Areas depicted in the Life Cycle Diagram are defined in Section 3.3. Although these capability areas may have specific data that they are responsible for, it is important to understand that data is an enterprise asset and does not belong to any particular business area, business process, system, or individual. It is important to think of data in terms of its stewardship, responsibility for the integrity of data, and not of its ownership, which implies proprietary rights.



### 4.3 Target State Vision Core Concepts

The target state business and data architectures are enabled by a number of technical and functional core concepts related to Access Methods, Data Storage, Integration, Standardized Identification, and Common Enrollment and Access Management. These concepts have been developed in a cohesive manner by the various Data Strategy teams to ensure they integrate into the target vision. While this document provides the framework for these concepts and shows how they are incorporated in the overall data architecture, reference is given to other key documents which provide more detailed explanations. Also, as previously noted, the Technology Vision and Strategic Plan and Quality Assurance Strategy and Implementation Plan deliverables will build upon these enabling concepts and elaborate on the technical strategies and data quality methodologies in greater detail.

This process of defining the core concepts was the fourth step toward reaching the Target State Vision.

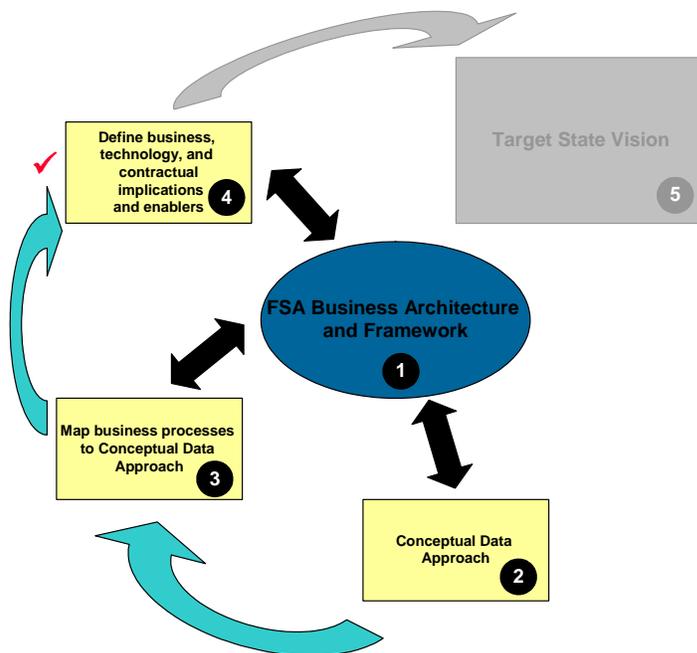


Figure 12. Step Four in the Process to Define Conceptual Target

#### 4.3.1 Access Methods

The Data Strategy vision for access methods is a consolidation of internal system to external system interfaces via a conceptual FSA Gateway and a reduction in web sites with a centralized portal strategy. This To-Be vision for access methods is supported by the creation of a common repository for data which will further reduce the number of entry points needed for the business entities (Person, Aid, and Trading Partners). By consolidating access points, a key



benefit is that a business intelligence and query analysis layer can now be applied that will allow FSA new insight into trading partner / user oversight.

#### *4.3.1.1 Web Usage Strategy*

The Web Usage Strategy (Deliverable 123.1.7) outlines the options needed to improve FSA's self-service capabilities while increasing web site interactions with its customers. By expanding FSA's web usage in a controlled and standardized implementation, a consolidated view of information and services to its end users can be provided. Additionally, the disbursement of financial aid information is streamlined and methods for communicating with trading partners are enhanced. This will improve customer satisfaction through a reduction in the number of web sites and providing a standard user interface while enhancing FSA's products and services. Additionally, this strategy will lower operational costs through streamlining the development and maintenance of web sites while maximizing the reuse of processes and technology. As an outcome there should be an overall reduction in the number of customer service calls with improved integration to other FSA applications and initiatives.

From a business perspective, the Web Usage Strategy will greatly facilitate all stages of the Business Life Cycle by supplying easier access for applicants to their student aid information and reducing the number of web sites that trading partners must access / enroll in order to retrieve information. Currently, FSA maintains three distinct portals (one for each of its business channels) and has a number of other web sites that serve a duplicate purpose while providing redundant content (Deliverable 123.1.6 Technical Strategies Statement of Strategic Focus details a list of all web sites within FSA. Examples include the Students Portal, Schools Portal, Financial Partner's Portal, IFAP, PIN, FAFSA, NSLDS for Students, NSLDS for Financial Aid Administrators (FAA), Student Aid Internet Gateway (SAIG), SAIG Enrollment, SAIG Download, Direct Loan Servicing, Direct Loan Servicing Online School's Site, etc.).

Another benefit of web usage standards could be the implementation of a pre-population service for all web sites or electronic enrollment forms for trading partners. This could be accomplished through preliminary data captured on the applicant in the Awareness Stage or data obtained in the access sign up phase for trading partners. Web usage standards would detail the method calls necessary to invoke these features. Additionally, implementation of a centralized repository would further support this strategy as updates made from all entities can be shared throughout the Business Life Cycle immediately guaranteeing the most current copy of the data to all business processes.

#### *4.3.1.2 FSA Gateway*

FSA has multiple entry and exit points for data. Examples range from the web sites to system specific transfers such as schools utilizing SAIG to process aid with FSA. FSA's growing and complex array of interfaces is further complicated by a lack of standardization for data exchanges in respect to file types, content, and connectivity methods. External Information Access (FSA Gateway Strategy - Deliverable 123.1.11) addresses these issues by proposing a virtual gateway to act as single entry point for Trading Partners to FSA's systems.

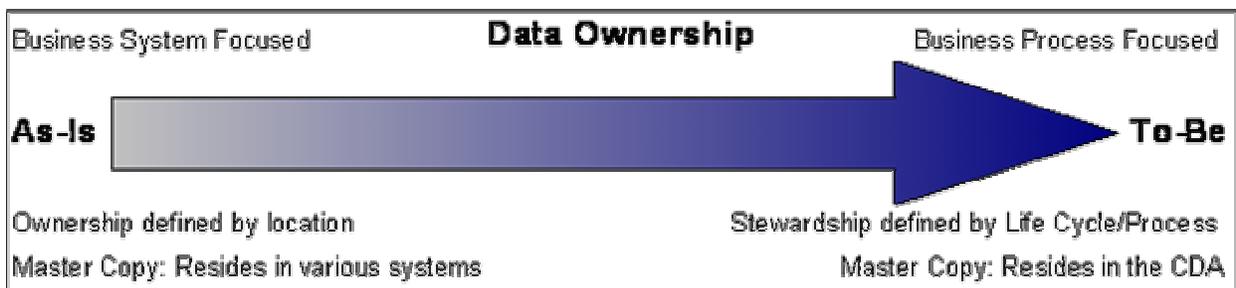


The “FSA Gateway” would contain different connectivity options for different transfer methods (real time or batch), while providing a standardized communications process for FSA to external entities. In this way, trading partners would not have to maintain multiple interfaces to each of FSA’s systems but rather connect to a common point making the internal workings of FSA transparent. A benefit of this is that each time an internal system is modified it would not directly impact the transfer method with the trading partner. This would lower integration and maintenance costs for both FSA and its trading partners. Through this To-Be vision, Guaranty Agencies would not have to maintain separate interfaces with NSLDS to submit FFEL transactions, FMS for Form 2000, and Debt Management Collection System (DMCS) to submit defaulted FFEL borrowers. The FSA Gateway would allow the GA to go to one central repository, obtain technical documentation on access and connection options, and create the interface independent of the specific system to which it is transferring data.

#### 4.3.2 Data Storage

In the As-Is state, ownership of FSA’s Business Entity data is often not clearly defined; some data elements are housed and updated by multiple systems, at times leaving the enterprise out of synch. Ownership is largely based on the location of the data and is spoken of in terms of systems (e.g., PEPS is a system of record for school data, Credit Management Data Mart (CMDM) has a copy of student data). Further, data on these core business entities is stored redundantly throughout many systems (person demographic data exists in almost all FSA’s systems; CPS, COD, Direct Loan Servicing System (DLSS), DMCS, etc.) leading to misappropriated funds, difficulty in tracking student enrollments and transfers, and lower data quality.

In the To-Be vision, the CDA would own all of FSA’s Business Entities. The various Business Capability Areas (e.g., APP, O&D, or CSB) are then given update/stewardship rights depending on the life cycle stage and business process. While copies of the data may be extracted and used for reporting or processing, all updates would be reflected in the CDA (CSB would provide limited updates of key data. Not all data would be replicated). Centralized ownership would allow for centralized standards which ensure the data’s integrity.



**Figure 13. Data Ownership Continuum**

The Data Storage, Management, and Access Strategy (Deliverable 123.1.10) further designs this concept of a centralized repository to accomplish the following FSA business objectives:



- **Store:** Develop a Common Data Architecture (CDA) to store historical information from all phases of the FSA Life Cycle. This information will support all front-end business processes.
- **Access:** Phase-in uniform business intelligence capabilities across FSA to create a single point of access for FSA data. This access can be tailored to a broad range of FSA user groups (e.g., reports, ad hoc queries, executive dashboard).
- **Integrate:** Create a flexible solution that enables system and users to better access data while integrating the business capabilities to support service requests. This integration objective will also gather feeds from both front and back-end systems to compile cross-life cycle information.
- **Enable:** Develop a robust framework to address all facets of an historical warehouse and provide a flexible enough solution for increased scalability to accommodate the increasing scope of shared data and rising number of students. This solution must also be scalable enough in the long term to accommodate a growing trading partner user base as functionality is rolled-out to the broader FSA community.

The benefits of this centralized architecture will allow for tighter control of ownership and integrity of the data. However, this is just a starting point as the CDA will improve the visibility of the data to all of FSA. This will allow the delivery of analytical capabilities (detailed reporting to executive dashboards) to business owners in order to gain insight into the data across the enterprise. The CDA will also enable the following:

- Reduce the data gathering effort by tailoring access methods to individual user needs.
- Reduce maintenance costs by eliminating redundant data storage as all front-end business processes will act upon the same set of data. This will also reduce data synchronization between systems.
- Reduce integration efforts within and external to FSA. With a consolidated source of data, new projects and new interfaces will only have to follow one process to integrate with FSA's CDA rather than establishing independent interfaces to multiple systems with different groups within FSA. This will simplify the security and access management of the data.
- Improve data quality of FSA data by storing data once in a consolidated environment. This benefit is further explored in the Quality Assurance Strategy and Implementation Plan (123.1.5) with the development of an enterprise wide data quality methodology.

#### *4.3.2.1 Business Processes in the To-Be Vision*

An example of the impact that the To-Be vision for data storage would have upon FSA is accomplished by comparing two business processes (the school file and the Abbreviated Applicant File) as they exist in As-Is Financial Aid Life Cycle Diagram with how they would be transformed by the new vision. It is evident from the two diagrams below that the business processes would be greatly simplified as the various convoluted internal and external interfaces of the As-Is state are replaced with a well organized, simplified data architecture in the To-Be state.



### 4.3.2.1.1 Daily School File

In the As-Is state PEPS sends the Daily School File to CPS, COD, Direct Loan Consolidation System (DLCS), eZ-Audit, FMS, and NSLDS. Furthermore, COD sends similar information to FMS and DLSS, and DLSS in turn sends school data to the CMDM and Delinquent Loan Data Mart (DLDM).

The picture is additionally complicated by the fact that ownership of the school data is not always clearly defined and updates to the data are not consistently shared among all of the systems in the enterprise. Data Quality Mad Dog items highlighted these issues, noting that DMCS does not receive the PEPS Daily School File and that FMS receives Data Universal Numbering System (DUNS) number changes from GAPS that may not have yet entered into PEPS.<sup>1</sup> In order for the enterprise to work in unison and be truly integrated, a common view of the data it is essential.

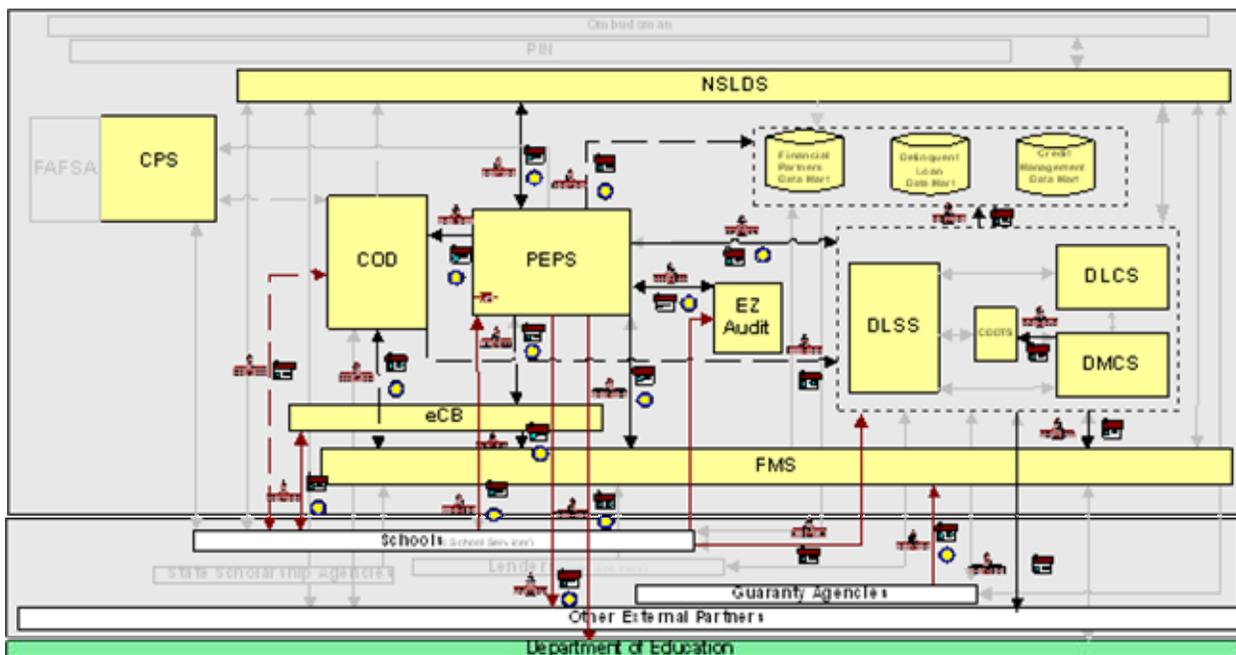


Figure 14. As-Is Flow of Daily School File

The CDA provides an efficient means for providing this common view of the school data. Internal to FSA, there is no longer the need for a Daily School File, rather the various Business Capability Areas access the school data in the CDA as they perform various business processes and functions. All updates are made to the school data in the CDA and are instantly available, ensuring the enterprise is synchronized and other processes are pulling up-to-date information.

<sup>1</sup> Data Strategy Deliverable 123.1.3 Data Quality Mad Dog Report

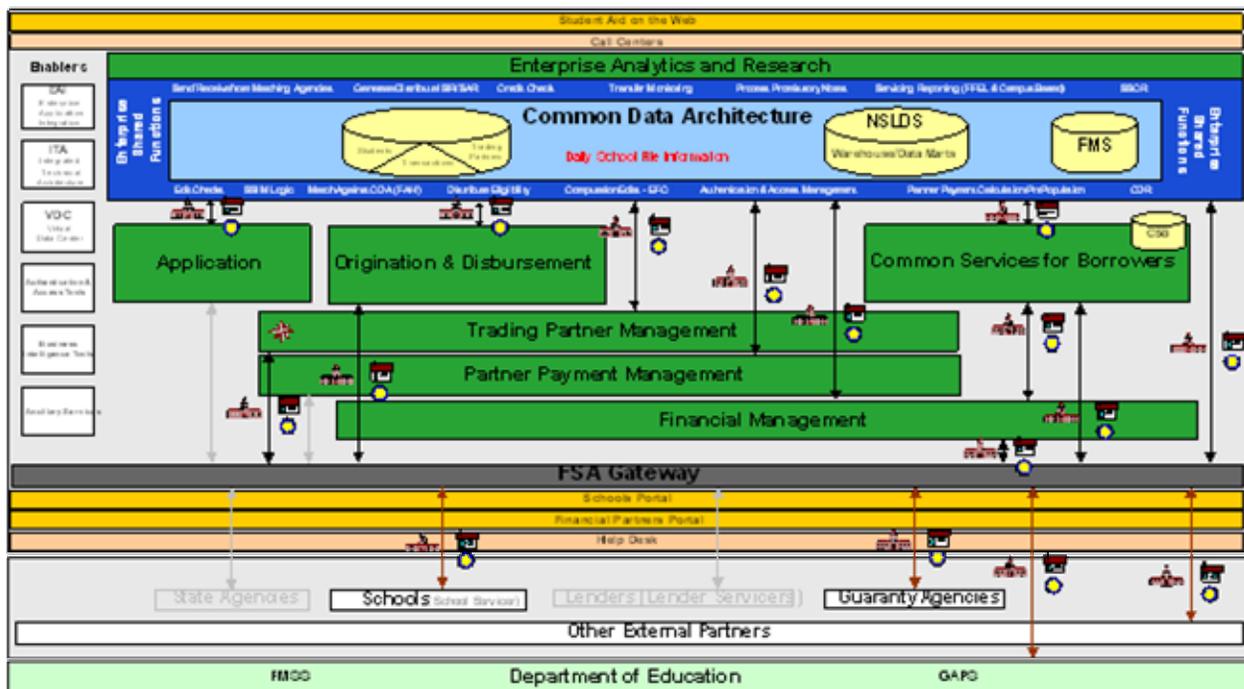


Figure 15. To-Be Flow of Daily School File

#### 4.3.2.1.2 Abbreviated Applicant File - AAF

Another example of increased efficiency due to integrated data is found in the validation functions currently performed by COD. Currently, CPS sends COD an AAF with a listing of all applicants found on the ISIR. COD uses this file to validate against Pell recipient records it receives from schools via the Common Record. In the To-Be state, this interface no longer needs to be maintained. The front-end business processes view the same applicant data in the CDA. As such, any changes made by APP to the person record and its eligibility fields are instantly available to O&D.

The accessibility of the AAF and school file data are only a couple examples of how the CDA provides integrated data. The benefits resulting from this integration are significant. A few examples of these potential benefits are:

- Decreased maintenance costs, as a number of internal interfaces and duplicated data stores are eliminated.
- Increased efficiency in cross-system analytics and better customer service, largely enabled by the ability to provide enterprise-wide, life cycle views of student and school data.
- Data clean-up and reconciliation procedures are simplified by leveraging a consolidated source of data rather than many independent systems.



### 4.3.3 Integration

A key factor for the integration of FSA's core business components is the notation of a shared function. A shared function, in most cases, is constructed into a shared service (other shared functions may exist that cannot be constructed into a service but they will be dealt with on a case by case basis). Services can be invoked through the Web or via a system call, and are constructed using a standard set of technologies in order to make business functions available over a network (whether an extranet such as a Virtual Private Network, the World Wide Web Internet, or an internal private intranet). Services provide a common set of standards for message formatting thereby allowing existing or new system to quickly establish interfaces to utilize the service. Business processes can be consolidated by utilizing a set of services to implement business functionality, reduce redundant functionality and enable more automated communications.

What is unique about web services is that they permit systems to talk with one another by leveraging the internet which minimizes the need for proprietary networks, communication protocols, and "hard-wired" connections.

The Internal Data Strategy (Deliverable 123.1.9 ) and External Information Access (FSA Gateway Strategy - 123.1.11) focus FSA on enabling access to its services and information by leveraging industry standards to support the use of services for the exchange of information (whether system to system or web to system), and improving customer self-service. Web Services at FSA will enable more rapid creation and distribution of new products and services while increasing the operational efficiency and quality of service. Some examples of business functionality that may be candidates for shared services are highlighted in the following sections.

#### 4.3.3.1 SSCR

FSA interfaces with schools in several ways in order to obtain enrollment information about Title IV recipient students. One of the primary transfers is a system to system transfer (electronically through SAIG or tape sent by mail) between schools and NSLDS via the Student Status Confirmation Report process (SSCR). In this process, individual schools update NSLDS concerning enrollment data for students in their school. GAs, the Direct Loan Servicer, and Lenders setup interfaces with NSLDS (electronically through SAIG or tape sent by mail) in order to determine when a student graduates or withdraws. The type of information updated includes a student's anticipated completion date, enrollment status and effective date. Additionally, the National Student Clearinghouse, which is a Servicer that represents over 2,800 schools, interfaces with NSLDS for the transfer of the SSCR. As an alternative transfer mechanism, schools and servicers are able to update their rosters online using the NSLDS Financial Aid Professionals (FAP) site. In the To-Be vision, these multiple access methods could be reduced through a combination of a centralized FSA Gateway, consolidated Web Portals Strategy, and creating the SSCR process as a key service located in the CDA. As a service, the long term student eligibility store (currently NSLDS) would not have to maintain separate interfaces with multiple systems. Trading partners would access the service through a common



gateway or portal. The service itself would provide the SSCR file creation within a standard set of technologies.

#### 4.3.3.2 *EFC Calculation*

The expected family contribution calculation is part of the Application process that all students undergo when seeking financial aid. Typically, the EFC calculation is invoked after the applicant has passed a series of eligibility checks within the CPS system (validation with the Social Security Administration (SSA), Selective Service (SS), etc.). Upon successful completion, the application enters a compute cycle to determine the EFC based on cost of attendance, family income, student income, and a variety of other factors. Currently, the EFC calculation is used not only by the CPS system but by Financial Aid Administrators (FAA) at schools when new information about the student is discovered (bankruptcy, less income than reported, medical emergencies, etc.). Changes that factor into the EFC calculation are not always communicated uniformly to FSA and can be done by multiple parties during the application. At a high level, the issues are as follows:

- A FAA may make changes to a student's EFC based on extenuating circumstances.
- COD receives the award amount from the school and, for Pell Grants, verifies the EFC with CPS. If the EFC is different than what is reported by CPS, COD will reject the Pell Grant back to the school. The FAA will then have to change the inputs to CPS (via EDEXpress or FAA Access to CPS on line) generating a new ISIR / SAR and resubmit the award to COD.
- If the award is for a direct or campus based loan, the award is originated and disbursed without verification with CPS. This results in incorrect information for the student that is stored in CPS and COD.

In the To-Be vision with shared functions and common data architecture, the EFC calculation could be implemented as a service rather than distributed to FSA's systems, as part of a standalone application, or on a web site. With one place to modify the EFC, logic is consolidated with data and all systems are notified of any modifications (whether Pell, Direct, or Campus Based) ensuring the integrity of the data. The origination and disbursement of the aid would then be consistent with the student's application information. Additionally, this service could potentially be open to external entities to ensure consistent application of the EFC.

#### 4.3.3.3 *Credit Check*

Credit checks are currently performed by various systems throughout the FSA Life Cycle. During the Delivery phase of the Student Life Cycle, COD requests batch credit checks before originating PLUS Direct Loans, and schools may initiate individual credit checks via the COD web site or external lenders' systems. The COD requests are sent to a third party credit verification service, which communicates directly with the national credit bureaus. In the Servicing phase of the Life Cycle, DLCS makes a credit check as part of the loan consolidation process for PLUS borrowers. DLCS performs credit checks through a daily batch request to an external vendor known as a surveyor. The surveyor then obtains credit information for each



PLUS borrower contained in the batch and returns a batch of credit check results to DLCS.<sup>2</sup> DMCS also performs a similar credit check on defaulted borrowers when defaulted loans are transferred to it.

The credit check process demonstrates how the different life cycle phases, business processes, transfer methods, and even different external vendors are used to perform the same basic function. This not only results in duplicated effort and resources but, with multiple interfaces, this increases the risk of bad data or data becoming out of sync. In the To-Be vision, utilizing a credit check shared function would make the credit check provider independent to FSA's systems and trading partners. If necessary, the provider could be changed with little modification to the shared function and no modification to users of the service. This would also have the impact of reducing interfaces, redundant data transfers, lower the risk of errors, and standardize the credit check process within FSA.

By utilizing shared functions, FSA will consolidate business capabilities that require multiple systems and create a repository of service capabilities for internal and external use. The creation of a standards board to oversee this implementation must be completed as a first step in this execution and there are a variety of other business functionalities that should be examined as part of the implementation phase to the data strategy. It should be highlighted that the main result from shared functionality is an improved return on investment through lower costs by more efficient use of system resources, providing consistent flexible access to existing legacy systems, and allowing for planned replacement of legacy systems.

#### 4.3.4 Standardized Identification

FSA recognizes the need for standard identification methods and commonly understood meanings of its key data elements. As part of its risk plan (Action Item 16.2.2), FSA stated the need for developing requirements and an initial design for school and student common identifiers and for creating an enterprise wide XML model. Then, during the Data Quality Mad Dog effort, FSA's business owners emphasized some of the current issues resulting from the lack of standard identification. One issue notes that, "there is no ability to pull data from systems across the Life Cycle to present a single, integrated student view complete with the current status of a student's aid and "workflow" indicators relative to that student."<sup>3</sup> In another issue it was observed that "there are no means within the enterprise to identify a Trading Partner Institution and its relationships to other entities so that data from multiple stores within FSA can be aggregated for viewing or research."

The Data Strategy group has addressed these issues by building a vision framework which incorporates a SSIM and RID for identifying FSA's customer entities. FSA will also utilize XML component modeling technology to ensure there is a common understanding of core data elements for exchange both internally and externally.

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<sup>2</sup> Data Strategy Deliverable 123.1.11 External Information Access (FSA Gateway Strategy)

<sup>3</sup> Data Strategy Deliverable 123.1.3 Data Quality Mad Dog Report



#### 4.3.4.1 SSIM

From Deliverables 123.1.22 – SSIM High Level Design and 123.1.23 – SSIM Implementation Strategy, the SSIM algorithm (logic that matches against Social Security Number (SSN), first name, date of birth, and last name) provides a uniform identifier solution for the Person business entity. Compared to the current As-Is state, applicants and borrowers/recipients' data integrity is improved and the problem of merging and splitting student/borrower records due to identifier inconsistencies is reduced.

Data integrity is facilitated by both initial validations and continued adherence to SSIM logic. With APP as the single entry point of origin for the Person within FSA, all applicants pass through common edits and eligibility checks, such as the SSA SSN match. After the master copy of the Person is established in the CDA, the SSIM algorithm, a centrally maintained shared function, ensures accurate record matches are made before allowing access and updates to the master copy.

The SSIM also allows the Person Entity to be commonly recognized by all business capability areas. FSA is able to view data about a customer across all phases of the Life Cycle. This enterprise wide view of the Person facilitates reporting on the identifier problems, once discovered, and enables consistent exception and correction processing and error handling.

#### 4.3.4.2 RID

From Deliverables 123.1.24 – RID Implementation Options Analysis and 123.1.25 RID High-Level Design, the RID (a unique randomly generated 8-digit numeric key that signifies nothing about the numbered trading partner entity besides its identity) provides a uniform identifier solution for the Financial Partner and School business entities with whom FSA interacts. Compared to the current As-Is state, the trading partner identifiers are no longer tied to a specific location; the RID is tied to each trading partner entity. The vision for RID is to remove partners from a situation of identifying themselves to FSA using different identifiers depending on the business process or system (e.g., GA ID, Lender ID, Servicer ID, eCB, etc.) with which they are interacting. RID is a single common identifier for all trading partners across the enterprise irrespective of system or function.

The use of this single identifier increases FSA's ability to efficiently gather comprehensive data about trading partners, which in turn, facilitates decision-making critical to FSA's core mission. FSA's customer service levels and ability to respond quickly to inquiries about trading partners are enhanced, and the potential for data quality issues due to discrepancies in identifiers is reduced.

The RID functionality is a part of a larger Trading Partner Management System (TPMS) solution. In the target state vision, the TPMS manages the creation and maintenance of trading partner entities, their roles, and the relationships of their roles with other trading partner entity roles, and stores this information in the CDA, making it available to the rest of the FSA enterprise. The RID functionality serves as a core enabler for the TPMS by providing FSA



trading partners a means to interact with FSA systems and services using a single common identifier across the enterprise.

It should be noted again that RID is only one aspect of TPMS. Not all of TPMS's functions and processes are currently being addressed by ongoing efforts (i.e., RID, Enrollment and Access Management, and eCMO). This being the case, a full picture of the TPMS in its entirety has yet to be developed. Such a picture will be developed in an upcoming effort to perform a gaps analysis and develop a set of end-to-end business requirements for the TPMS solution.

#### 4.3.4.3 XML

Not only is it important to identify the key business entities commonly used and exchanged, it is also necessary to establish a common method of communicating the data elements which the entities comprise. Deliverables 123.1.13 through 123.1.21 address how XML provides the framework for this data architecture change through the creation of common definitions and usage of core components of data across the enterprise and within the community. As both internal and external data exchanges conform to these standard definitions, FSA will minimize the misinterpretation or misapplication of rules surrounding the data across interfaces and will reap the benefit of consistency in the data being transmitted. (Further definition around the impact XML has on data quality can be found in deliverable 123.1.5 Data Quality Assurance Strategy).

These benefits of standardization have been recognized by the U.S. Department of Education, as it has established XML as an essential technology for supporting its business functions. This principle of standardized data and definitions and its underlying rationale are presented in the *U.S. Department of Education Enterprise Information Technology Architecture*:

“Principle 26: ED data will conform to a standardized set of data elements and definitions.

Rationale: Effective information sharing and exchange depends on a shared definition of standard data elements throughout the Department. To support program decision making, the timeliness and integrity of each data element should meet the information need of the most demanding Department user.”<sup>4</sup>

With an XML model comes the need for joint FSA and community governance and maintenance of standards which will be administered through a core component repository. As this repository is refined and enhanced, it can also become an invaluable tool for administering cross data source cleanup and measuring and maintaining data quality.

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<sup>4</sup> United States Department of Education, *U.S. Department of Education Enterprise Information Technology Architecture* (September 30, 1998): 36.



#### 4.3.5 Common Enrollment, Access Management, and Security

The Enrollment and Access Management work within the Data Strategy initiative documents FSA's business objectives and requirements for its customers to gain access to and enroll in FSA's systems. The Partner Identity and Access Management Tools Analysis (a new task order, begun on October 1, 2003)<sup>5</sup> analyzes these business objectives to determine if a group of technologies can meet these requirements. Additionally, security work is being done in tandem to develop enterprise-wide security services through deployment of security architecture components.

##### 4.3.5.1 Enrollment and Access Management

FSA has two key sets of customers it interacts with: students/borrowers and trading partners. In the current As-Is environment, the enrollment and access management processes operate on a non-centralized, non-standardized basis. This is further complicated by multiple tools and variety of required access rights for users to different processes. As a result, Trading Partner interactions with FSA systems are fragmented and complex causing inefficiencies in business process (multiple access steps for new interfaces to be created), data quality issues (uncontrolled access for FAA users), and a higher degree of maintenance than necessary. The To-Be architecture eliminates these diverse interfacing methodologies by providing a common, well branded enrollment and access management scheme. The following deliverables highlight the business objectives, requirements and designs for the To-Be vision of enrollment and access management within FSA for the different business entities (Person and Trading Partner).

- Enrollment Business Objectives and High-Level Requirements (Deliverables 123.1.26 )
- Access Management Business Objectives and High Level Requirements (Deliverable 123.1.27)
- Enrollment High Level Design (Deliverable 123.1.28)
- Access Management High-Level Design (Deliverable 123.1.29)

These deliverables formulate the guiding principles that will drive the next phase of design for the access and enrollment components of the Data Strategy. Additionally, these principles can be utilized as an example of the first steps in the ED PIN re-engineering (Deliverable 131.1.3 ED PIN Technical Architecture Upgrade Analysis) and Trading Partner Requirements Gap Analysis (TO 147) efforts.

From a To-Be business capabilities perspective, the ED PIN is an integral part of the APP business process, as APP handles ED PIN requests and distribution of the ED PIN to the users. The ED PIN system is intended for the pre-applicant and applicant for Title IV Aid. It is not a suitable credential for trading partners (FAAs at schools or Financial Partner personnel). The authentication and access management related to the ED PIN is a Shared Function, available to all Business Capability Areas, and is implemented for both individual users and client systems

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<sup>5</sup> Integration Partner Identity and Access Management Tools Analysis (Rev 01) Task Order Technical Proposal (TO 143)



as part of any transaction request. The access management also separates the functionality associated with authentication and electronic signature into separate components. Self-service functionality is enhanced to encourage increased use of the ED PIN while minimizing help desk contact.

The Access and Enrollment functions for the TPM initiative provide the foundation to identify GAPS in Trading Partner interactions with FSA. Currently, schools have to individually enroll with FSA's system in order to participate in Title IV funding (in some cases a school will have to enroll in over 10 different systems). By providing a set of consolidated processes and standard tools for enrollment, the Trading Partner Management System would simplify the process down to a single location. This would lower maintenance costs, reduce redundant data being sent, and increase the management / quality of data. The Access Management initiatives would support the enrollment process by provisioning and managing the authentication, authorization, and audit functions at an enterprise level. This will allow for simplified sign-on procedures and improved security.

The Identity and Access Management Tool Selection process (TO 143) will facilitate the implementation of the Enrollment and Access management designs by developing recommendations based on FSA's need for security services, analyzing COTS tools in the market place relative to custom built solutions, and completing an impact analysis on FSA's systems. The goal is to provide solutions that not only meet FSA regulatory compliance requirements but that are flexible enough to support requirements for current and future FSA systems.

#### *4.3.5.2 Security*

Enrollment and Access management cannot be designed without consideration of the security of the enterprise. Security is a multifaceted function that is tied into almost every component of FSA's architecture. Currently, there are a number of security challenges within FSA as systems and applications are implemented without a consistent security process. This is complicated by the fact that there are no standard communication methods for relaying the security requirements, standards, and solutions to the business owners and development teams.

The Security and Privacy Architecture Framework (Task Order 124) and Security and Privacy Support (Task Order 120) creates a framework and supplies an implementation strategy that recommends several actions to prepare FSA for development and deployment of security standards with services. As a result of these actions, FSA will increase the efficiency and effectiveness of access management operations, enhance the manageability of security administration systems, and provide greater oversight of registration and access privileges. This Security Framework also has a long term vision for its security technical infrastructure which increases the integrity (preventing data theft and maximizing transactional accuracy), confidentiality (prevent unauthorized viewing), availability (prevent disruption of service), and accountability (provide for clean security audits) of FSA's data.<sup>6</sup>

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<sup>6</sup> Deliverable 124.1.3 - Security and Privacy Architecture Framework Specification



#### 4.4 To-Be Entity Flow Diagrams

The Target State Vision is an accumulation of the steps outlined in the previous sections of this document. This vision outlines the framework for an organized and consistent business environment. In this environment, the data is managed at the enterprise level, providing accurate, dependable analytics. The To-Be Business Entity Flow Diagrams show the target state vision in action by demonstrating how data for each of FSA's key business entities is accessed and managed throughout the entire Financial Aid Life Cycle.

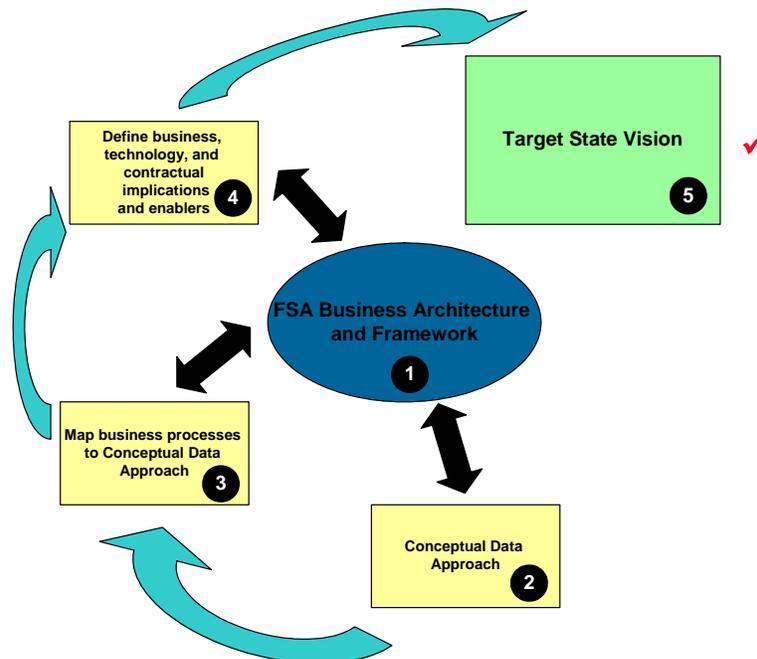


Figure 16. Step Five in the Process to Define Conceptual Target

As part of the As-Is Entity Flows, four key FSA business entities were identified: Person, Aid, School, and Financial Partner. Each entity is further broken down into its underlying components and subcomponents.

- **Person:** a Person who is researching the possibilities for Title IV Aid, applying for aid, or being serviced after having received aid. The components or types of Person Entities are Applicants, Borrowers, and Students. The Person's underlying information is grouped into demographic, eligibility, and financial subcomponents.
- **Aid:** grants or loans distributed by FSA or one of its Title IV Partners. The individual components of Aid are Pell Grants, Direct Loans, Consolidated Direct Loans, Federal Supplemental Education Opportunity Grant (FSEOG), Federal Work Study (FWS), Perkins Loans, FFEL Loans, Health Education Assistance Loans (HEAL), Federally Insured Student Loans (FISL), and their associated Funding and Payments. Further subcomponents include award information, loan information, and types of Funding &



Payments (Campus-Based Transactions, LEAP/SLEAP Transactions, FFEL Based Transactions, FSA Based Transactions, and General Ledger Accounting).

- **School:** an Educational Institution or its Third Party Servicer participating in one of the Title IV programs. The components or types of School entities are Educational Institutions and Third Party Servicers. Both the school's demographic information and participation information are subcomponents that flow through FSA's systems.
- **Financial Partner:** an institution participating in the financial role of delivering and/or servicing Title IV Aid. These components include State Agencies, GAs, and Lenders or their Servicers. These partners submit both their demographic and participation information (subcomponents) to FSA.

#### 4.4.1 Objectives

The To-Be diagrams depict each of the key FSA business entities (Person, Aid, School, and Financial Partners) as they flow through FSA's Business Capability Areas in the Business Life Cycle Stages: Aid Awareness & Application, Delivery, Institution Participation, and Servicing. The flows help illustrate the consolidation and integration of FSA's data in the target state and emphasize the importance of a number of the To-Be core concepts, such as the Common Data Architecture and Enterprise Shared Functions. These views provide a tool that can be utilized as a reference for future projects on FSA to ensure they are aligning with the Data Strategy vision.

#### 4.4.2 Methodology

The steps in creating and validating the To-Be Entity flow diagrams include:

- **Examine As-Is Entity Flows:** To define FSA's enterprise data vision and strategy, the existing As-Is data flows were examined, verified, and presented in multiple views. These views highlighted the areas of data redundancy between systems and the lack of common data standards throughout the enterprise. This input enabled the development of a target state model which defines points of consolidation, removes areas of inconsistent data, and establishes a framework whereby data quality will be inherent to the enterprise.
- **Incorporate Option Analysis, To-Be Financial Aid Life Cycle Diagram, and To-Be Core Concepts:** Before the To-Be Business Entity Diagrams were created, FSA's business owners identified "Option D" as their target state vision (see Section 4.1 for more details on the options). Using this option as a basis, the To-Be Financial Aid Life Cycle Diagram was then drafted. The Financial Aid Life Cycle Diagram provided the architectural structure through which the business entities are diagrammed. With a proposed business and data architecture established, a number of core To-Be concepts were also developed and incorporated into the To-Be Business Entity Diagrams.
- **Create the To-Be Entity Flows:** The next step was to document the "story" for each Business Entity and to create the actual Business Entity Diagrams. The proceeding sections of this deliverable document these stories (Person, Aid, School, and Financial Partner), the corresponding flow diagrams are in Appendix I: To-Be Business Entity Flow



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Diagrams. The To-Be Entity flows are to be read similar to the Financial Aid To-Be Life Cycle with the exception that the diagrams start with the text box on the left side above the gold star, and then proceed clockwise to read the remaining text boxes. Grayed-out business capability areas or arrows indicate that they are not integral to the story of the diagrammed Entity.



#### 4.4.3 Person

The figures below depict the As-Is and To-Be Entity Flow Diagrams. Appendix I provides a full size version of the To-Be diagram.

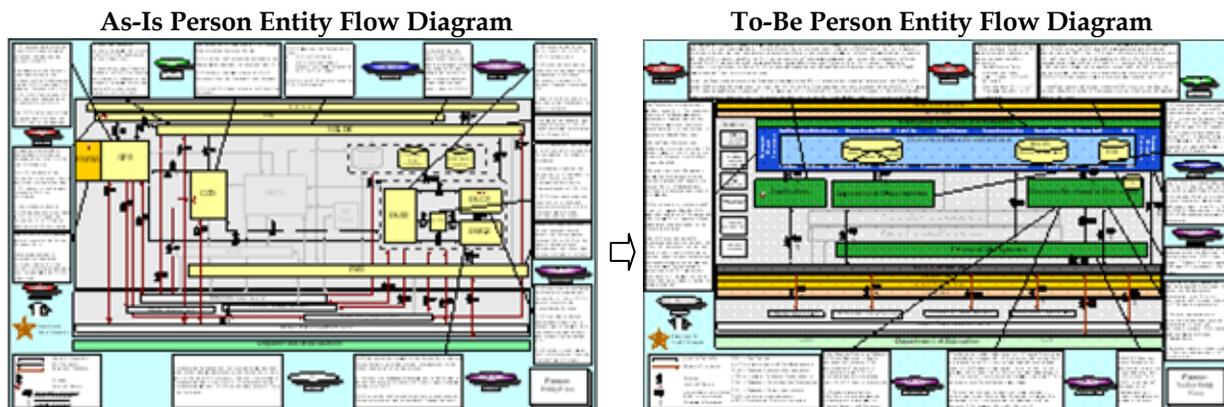


Figure 17. Change from As-Is to To-Be Person Entity Flow Diagram

In the To-Be target state data architecture, the Person Entity master copy resides in the CDA. The Applicant/Borrower can update specific components of their demographic information in the CDA at any stage of the Life Cycle via their MyFSA account on Student Aid on the Web. Various enterprise internal and external systems also have access and can update selected Person Entity information.

The CDA provides a single, integrated student view across the Life Cycle. Analysts performing cross-system analytics and Ombudsman personnel researching outstanding issues obtain Person data by accessing the CDA via various interfaces (e.g., portals, customer service centers, specific business area interfaces). The SSIM algorithm and standards are an Enterprise Shared Function (ESF) that is utilized when accessing and updating the Person information.

##### 4.4.3.1 AID AWARENESS & APPLICATION / Submission

###### **APP**

The Application Business Capability Area, whether through MyFSA, FOTW, or paper FAFSAs, is the FSA point of origin for all potential Title IV borrowers/recipients. Aid Awareness is the first step in educating students about available Title IV Financial Aid options. Through Student Aid on the Web, users create a MyFSA account. The MyFSA data is stored in the CDA for the execution of appropriate awareness activities. The information collected through MyFSA can also be used to pre-populate either an admissions application or the FAFSA online. The FAFSA (initial submission, correction, or renewal) comes directly from the applicant or from the applicant via a school. All applicants, including PLUS borrowers, submit a FAFSA or equivalent application. The To-Be process makes this a required action for all borrowers, in an effort to prevent Title IV Aid from being distributed to non-eligible recipients. The applicant information is passed to the CDA and establishes the Person Entity master copy.



During the Aid Awareness and Application Life Cycle Phase, Applicants can request an ED PIN at any point, including while logged onto Student Aid on the Web or when they are ready to submit their FAFSA online. If the applicant has not yet requested an ED PIN, APP automatically creates an ED PIN when an application is received. APP initiates an SSA SSN Match ESF for every ED PIN request. The ED PIN can be used for electronic signatures only if the person has been verified by SSA. After creating the ED PIN, APP sends the ED PIN to the applicant.

After being triggered, the SSA SSN Match ESF sends the person's information to SSA for verification. After SSA verification, the PIN is created and distributed to the applicant. The ED PIN resides in the CDA and Authentication and Access Management tools enable FSA's systems to access the ED PIN for verification throughout the business Life Cycle.

The PIN serves two purposes: 1) Student Authentication and 2) Electronic Signature. Credentials that are verified with SSA are distinguished from those that are not, allowing FSA to service its entire student customer base (including individuals without social security numbers such as Pacific Islanders) without compromising compliance with electronic signature standards. If an applicant has an SSA validated SSN, they can use their ED PIN as an electronic signature on the FAFSA; otherwise, they must submit a hard copy signature. Parents may also apply for PINs and use them as an electronic signature to verify the financial information on their child's FAFSA.

PINs are limited to students and borrowers; they are not a suitable credential for trading partners (schools and financial partners) including FAAs. A plan to transition FAAs to a different authentication credential will be developed as part of the Identity and Access Management initiative.

Note: Not all ED PIN recipients become applicants, and not all applicants become borrowers/grantees. For example, some customers receive an ED PIN via the ED PIN Web Site but end up not submitting a FAFSA. Other customers may submit a FAFSA but do not receive Title IV Aid because they are ineligible or simply decided not to accept any aid.

#### *4.4.3.2 AID AWARENESS & APPLICATION / Eligibility*

##### **CDA**

Once a Person's data enters the CDA a number of eligibility ESFs are automatically triggered as part of the needs analysis processing:

- Send/Receive from Matching Agencies:
- After receiving a list of Person Entities from APP, SS sends a file with results of selective service match and registration.
- The Department of Homeland Security (DHS) responds to APP with a file for foreign Person verifications (previously known as the INS match).
- Veteran Affairs (VA) sends a file with veteran status confirmation for the list of Persons sent by APP.



- The Department of Justice (DOJ) sends APP a list of Persons that have drug convictions and should be denied federal student financial aid.
- Run Credit Check - sends a list of potential PLUS borrowers to the National Credit Bureaus and in return receives credit check information for the Person.
- Match against CDA/Financial Aid History (FAH) – Summarizes the students aid history and sets aid eligibility flags
- Computation Edits EFC - calculates the students EFC

Once a change in the results of the EFC calculation or eligibility fields in the CDA are noted, the ISIR and SAR are generated and distributed automatically by ESFs. The ISIR is sent to schools, State Agencies, and GAs, and the SAR is sent to the applicant. The CDA, being a common data store for both APP and O&D, ensures the ISIR is distributed to the student's correct, up-to-date institutions and the SAR is sent to the student's correct address. Any updates by the school or student to the ISIR/SAR information are stored in one common location, the CDA.

A school can request a Person's Financial Aid History to assist in determining the aid package by sending the Person's identifiers to the CDA or requesting the Person be flagged for transfer monitoring.

#### *4.4.3.3 DELIVERY / Origination & Disbursement*

##### **O&D**

O&D receives all updates to the Person Entity made during the Delivery Life Cycle Stage and passes them on to the CDA. Using the Common Record, schools (DL, Pell Grants, and Campus Based Aid) and GAs or Lenders (FFEL Loans) submit updated Person Entity information via the FSA Gateway. Schools are required to submit all Campus Based Aid information. The Person Entities contained within the Common Record are matched against the applicant records created in the CDA by APP (because the data is shared there is no longer the need for an AAF to be sent to O&D). Since all borrowers are required to have already submitted a FAFSA or equivalent application, any records that do not have a match in the CDA are not accepted and returned to the school. For records that are accepted, the Person Entity is updated in the CDA with any changes received on the Common Record and is flagged as a “borrower” or “grantee.”

It should be noted again that the data in the CDA is shared by both the APP and O&D processes. As such, the Pell Recipient data processed by O&D is inherently available to APP for analysis, end of year reporting, and verification selection. Verification selection is the process of validating the Federal Pell Grant disbursement data processed through O&D.

#### *4.4.3.4 INSTITUTION PARTICIPATION / Oversight*

##### **CDA**

Schools and their servicers (the largest of which is the National Student Clearinghouse) update the CDA concerning enrollment data. GAs and Lenders use this information to determine



when a student graduates or withdraws. The type of information updated includes a student's anticipated completion date, enrollment status and effective date.

The data exchange is initiated by the SSCR ESF. This shared function generates a SSCR based on previous enrollment data and sends it via the FSA Gateway to each school/servicer. Once the school/servicer receives the Roster, they update the roster with any student status changes and send it back via the FSA Gateway to the CDA.

The SSCR ESF then notifies CSB and GAs with the updated enrollment information.

#### 4.4.3.5 *SERVICING / Repayment*

##### CDA

The CDA interfaces with CSB (Direct Loans), schools (Campus Based Aid), and GAs or lenders (FFEL Loans) for Person Entity updates during the Servicing Life Cycle Stage.

##### CSB

Once O&D flags a Person's Direct Loan as being booked, CSB accesses the borrower's information in the CDA and begins the Servicing process. If a school closes or exits the Perkins program, it submits all of its Perkins Loan borrowers to CSB for servicing. CSB also receives and processes disability claims for Direct Loans, FFEL Loans (received from GAs or Lenders), and Perkins Loans (received from schools). If a person is denied discharge, they return to the normal servicing process. Any changes to the Person's information flow from CSB back to the master copy in the CDA. Information such as data for discharges (bankruptcy, death, disability, or default) is then available to O&D and all of FSA's business processes.

CSB uses the basic Person demographic identifiers to:

- Initiate an ESF which requests income information from the Internal Revenue Service (IRS). This information is used to determine the borrower's eligibility for Income Contingent Repayment (ICR) Plans.
- Receive payments for Borrowers via Lockbox, EDA Vendor or web site.
- Send a listing of delinquent/discharge borrowers to the National Credit Bureaus.
- Inform the Clearinghouse of borrowers for whom to collect enrollment information.
- Notify schools of the students who have completed entrance or exit counseling.
- Provide borrower customer service via various forms of correspondence (phone, mail, etc.)



## **FM**

While FM does not store Person level accounting details, the Person passes from CSB through FM to the Grants Administrative and Payment System (GAPS) in the case of borrower level transactions (e.g., Direct Loan refunds or disability refunds).

### *4.4.3.6 SERVICING / Consolidation*

#### **CSB**

After being notified that a Direct Loan Consolidation is requested by a borrower or Private Collection Agency (PCA), that has worked with the borrower, CSB accesses the Person Entity information in the CDA for verification (Note: Since all Person's are required to submit a FAFSA or equivalent application to APP, the Person's information must already be in the CDA to be eligible for a Consolidated Direct Loan).

CSB uses various person identifiers to request pay off details from the underlying loan holders and to report the actual payoffs.

If the consolidation applicant is a PLUS Borrower, CSB initiates the Credit Check ESF.

### *4.4.3.7 SERVICING / Collections*

#### **CSB**

After being notified by a school or GA that a loan/grant is being assigned for collection, CSB accesses the Person Entity information in the CDA for verification. All updates to the Person's information are sent from CSB to the CDA master copy.

CSB uses the Person's identifiers to send and receive information in a number of processes with various Trading Partners:

- CSB transfers accounts to PCAs for servicing. Recalls and adjustments can be made to the at the PCA from CSB. PCAs send account returns and adjustment details concerning the Person to CSB.
- GAs interface with the Treasury (via CSB acting as a pass through) as part of the Treasury Offset Program (TOP). TOP is used as a tool by CSB to garnish tax refunds of borrowers. Additional tools include Administrative Wage Garnishment (AWG) for non-governmental workers, Federal Salary Offset Program (FSOP) for government workers, and garnishment of any type of refund and / or payment the government may make to a defaulted borrower (e.g., the lottery).
- CSB is also a pass through for GAs requesting current Person demographic information from Health & Human Services/National Database of New Hires (HHS/NDNH).
- As part of the Treasury's IRS skip trace process, both GAs and schools send a list of Persons to CSB. CSB forwards this request on to the Treasury's IRS department and then sends the response with basic Person demographic data from Treasury back to the



original GA or school that made the request. Skip tracing can be performed for any Person; however the majority of skip tracing is for borrowers with defaulted loans.

- CSB sends IRS interest paid by borrowers and write-offs on the borrower accounts.
- CSB notifies Housing and Urban Development (HUD) of defaulted borrowers so that restrictions can be put on housing aid / mortgages.
- Credit Bureaus ask for borrower status updates from CSB to change credit ratings.
- SSA sends CSB files with a list of borrowers who are deceased.
- CSB sends borrower information to DOJ for those defaulters that are in litigation. DOJ sends any payments for borrowers received while in the litigation process less the applied fees.
- As part of the Federal Defaulter Program (FDP), CSB sends Department of Defense (DOD) and United States Postal Service (USPS) a list of all defaulted borrowers. A notification is sent back from DOD and USPS with a list of matched Federal Employees who have defaulted, a list of unmatched defaulters, and a list of defaulters who were unable to load into their respective systems. CSB starts collections on all federal defaulters except DOD and USPS employees. These organizations start their own collections and send back to CSB a list of payments made. CSB processes these payments via its interface with Treasury.
- Borrowers who file for Bankruptcy are transferred to a third-party servicer for collections. Person demographic as well as loan level details are sent.



#### 4.4.4 Aid

The figures below depict the As-Is and To-Be Entity Flow Diagrams. Appendix I provides a full size version of the To-Be diagrams.

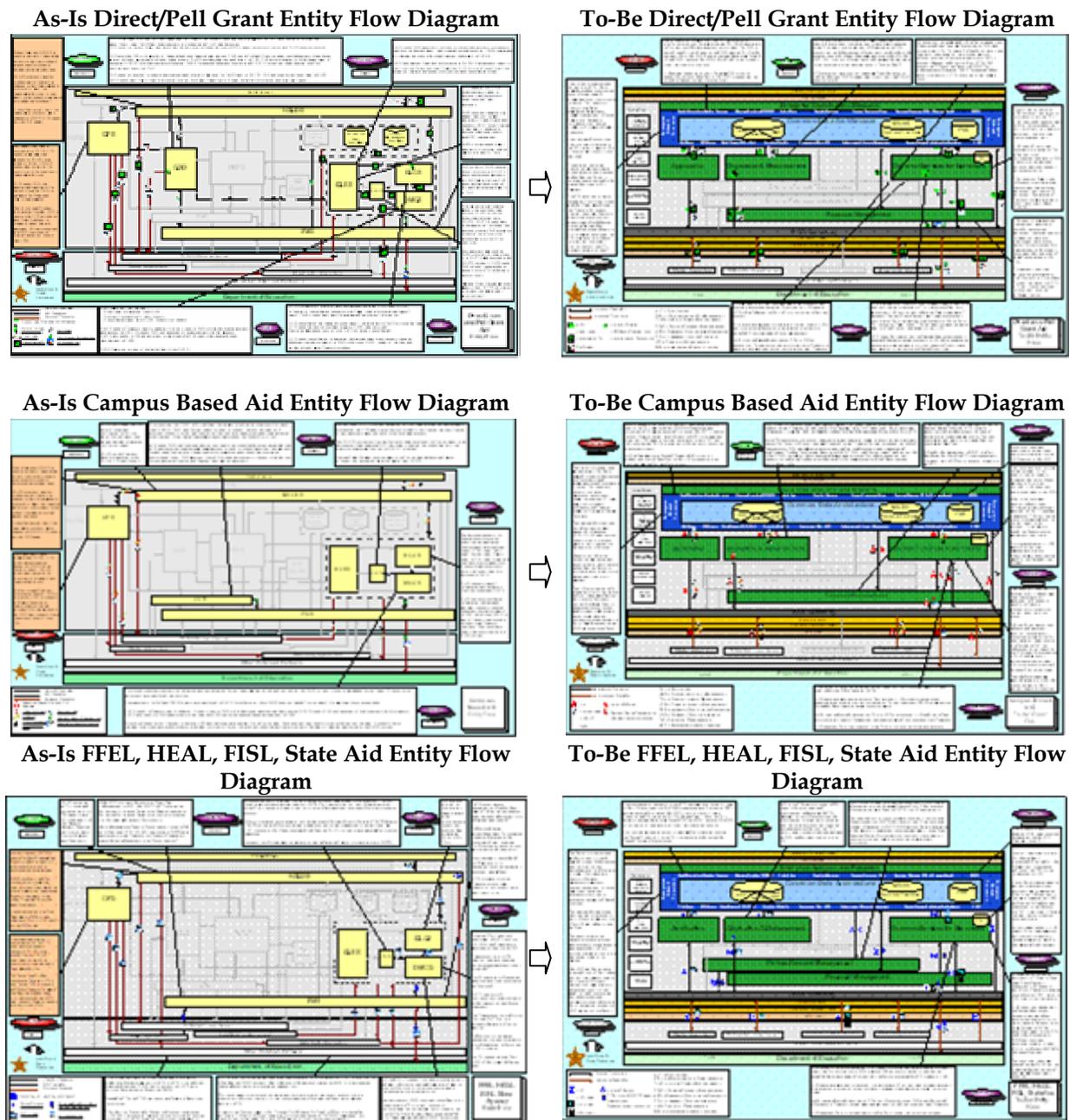


Figure 18. Change from As-Is to To-Be Aid Entity Flow Diagram

In the To-Be, target state data architecture, the Aid Entity master copy resides in the CDA where both detailed student disbursement level information and aggregated school information is stored. The Applicant/Borrower can view all of their Title IV information (Direct Loan, Pell



Grant, FFEL Loan, FSEOG, FWS, and Perkins Loans) in the CDA at any stage of the Life Cycle via Student Aid on the Web. Various enterprise internal and external systems have access and can update selected Aid Entity information. Analysts performing cross-system analytics and Ombudsman personnel researching outstanding issues obtain Aid Entity data by accessing the CDA via various interfaces.

The origination and disbursement of aid for FSA is facilitated externally by the schools, lenders, and State Agencies. O&D is the FSA point of origin for all student level Title IV Aid Entity detail information, except for Direct Consolidation Loans which originate in CSB. Schools submit records for Direct Loans, Pell Grants, and Campus Based Aid and GAs or Lenders submit records for FFEL Loans to O&D via the FSA Gateway. While TPM handles schools' applications to participate in Campus Based programs, O&D processes the funding and generate obligation and payment transactions. The servicing of loans is handled externally by schools for Perkins Loans and by financial partners for FFEL Loans; internally, CSB services and consolidates Direct Loans. CSB also performs collections on Title IV Aid defaults and overpayments. PPM serves as the entry point for State Agencies' grant funding requests. FM handles the accounting for all of the associated transactions for these business processes. The following is a breakdown of these processes within FSA:

#### *4.4.4.1 APPLICATION / Submission*

The Aid Entity has no internal data flows until the Eligibility process in the Application Life Cycle Stage.

#### *4.4.4.2 APPLICATION / Eligibility*

##### **CDA**

The CDA allows FSA's eligibility determination and distribution to become a seamless, integrated process. In the As-Is, CPS had to send and receive various data transfers with NSLDS, COD, and External Agencies. The To-Be vision consolidates the data into the CDA and a number of Enterprise Shared Functions utilize this central data to support business processes.

Any time a person's status flags change (e.g., an overpayment is made, there is new default information, a loan is discharged, a school is closed, the loan exceeds the subsidized limit, or the loan exceeds the combined limit) the Computation Edits - EFC ESF is re-run. Once a change in the results of the EFC calculation or eligibility fields in the CDA are noted the ISIR/SAR Generation and Distribution ESFs are automatically initiated. The ISIR is sent to schools, State Agencies, and GAs and the SAR to the applicant. The CDA, being a common data store for both APP and O&D, ensures the ISIR is distributed to the student's correct, up-to-date institutions. The ISIR contains demographic and loan level information about the applicant that the trading partners use to create or adjust the aid package. It should be noted that GAs can receive the ISIR directly from FSA, the school, or a State Agency.



A school can also request a Person's Financial Aid History to assist in determining the aid package by sending the Person's identifiers to the CDA or requesting the Person be flagged for transfer monitoring.

#### 4.4.4.3 *DELIVERY/Origination & Disbursement*

##### **O&D**

After computing an applicant's need analysis, APP stores the information on the CDA and makes it available to O&D (Note: In the As-Is COD required an interface from CPS, the AAF, to receive this data). O&D uses this information to validate Pell Grants and Direct Loan award originations. This ensures that no duplicate disbursements are sent and that no transactions with an expected family contribution equal to or greater than zero are omitted.

O&D is the FSA point of origin for *all* Title IV Aid. Schools send Pell Grant, Direct Loan, and Campus Based Aid disbursement updates on the Common Record via the FSA Gateway. GAs or Lenders submit FFEL loan disbursements (Note: this interface could be in the same format as the As-Is FFEL reporting or it could be sent using the Common Record). After O&D processing, all the disbursement information is stored at both the detailed student level and the aggregated school level in the CDA. The school or GA receives a response record indicating any invalid disbursement records.

The Pell Grant, Direct Loan, and Campus Based information reported to O&D is used for managing funding levels, substantiating the Federal Aid payments to the schools, and justifying the schools' federal drawdowns from GAPS. To ensure only eligible schools award aid, an eligibility check is made before any funding transactions are processed. This eligibility check runs against the school data stored in the CDA as a result of TPM processing. As a requirement for Direct Loan disbursement, O&D processes various data from the borrower, such as electronic MPNs, paper promissory notes, and PLUS endorser records.

While TPM processes the schools' application to participate in Campus Based Programs and their request for funds, O&D uses requested amounts and the details reported on the Common Record to manage the schools' funding levels. O&D calculates a tentative and final (after adjustments and supplemental modifications) funding level for each aid type and notifies the schools. O&D calculates the supplemental award amount to send to schools based on their requests for additional funding after the annual cycle completes and other schools have returned undistributed funds.

##### **FM**

FM accesses the aggregated school level transactions (financial and non-financial) processed by O&D for Campus Based Aid, Direct Loans and Pell Grants (e.g., funding adjustments, unbooked loans, Campus Based closeout of obligations for supplemental funding, Teacher Cancellation payments, and Unpaid Teacher Cancellation liabilities).

After receiving transactions processed by O&D, FM in turn interfaces with GAPS for disbursement information and to set funding levels. GAPS receives the Common Interim



Payment Process (IPP) file from FM, which contains Pell, Direct Loan, and Campus Based transactions. An acknowledgement file is returned from GAPS to FM. In turn, FM sends Pell and Direct Loan obligation and de-obligation acknowledgements, drawdowns, returns, refunds, reversal of refunds, adjustments, DUNS number changes, and errors to the CDA which the O&D Business Capability Area uses for processing.

FM has two other data flows with ED CFO (Department of Education's Chief Financial Office). Budget levels for each aid program are updated directly in FM by ED CFO personnel, and FM sends general ledger information to FMS (ED CFO's financial management system) via a GL to GL interface.

### **PPM**

PPM is the FSA point of origin for State LEAP/SLEAP Grant information (see the Financial Partner Entity Flow for more information on State Agencies' LEAP/SLEAP applications). State agencies send LEAP/SLEAP award information, detailed expenditures, and refunds of unused award amounts. The disbursement of funds to State Agencies is controlled by FM accessing the LEAP/SLEAP data in the CDA and sending funding information to GAPS. GAPS passes the information on to the Treasury Department for actual payments to the State Agencies. While FSA controls the funding of these grants it does not store any detailed, student level state grant information.

#### *4.4.4.4 SERVICING / Repayment*

### **CDA**

The CDA receives Aid Entity updates during the Servicing Life Cycle Stage from CSB (Direct Loans), schools (Campus Based Aid), and GAs or lenders (FFEL Loans).

### **CSB**

After O&D flags a booked Direct Loan for servicing or if a school closes or exits the Perkins Loan program, CSB retrieves the Aid Entity information from the CDA. CSB then sends updates back to the CDA throughout the Servicing Life Cycle Stage (e.g., payments, refunds, loan status changes, etc.).

During Repayment, CSB distributes Direct Loan information to borrowers for billing and other correspondences via the Direct Loan Web site, notification letters (e.g., disclosure and welcome letters), phone calls, emails, and other ad hoc methods. If a borrower signs up for direct electronic payments, CSB interfaces with the EDA vendor to establish the borrower's electronic deposit payment account and to notify the vendor of scheduled payments. CSB receives notification of the payments made via the EDA vendor and payments made via the lockbox (hardcopy) or the web. CSB also receives manifests and checks with military allotment forms from DOD and mutual assistance program manifests from the Coast Guard.

CSB also handles requests for disability discharges for all loans (Direct, Perkins, and FFEL). The process is different for each program/loan type:



- **Direct Loans:** The borrower submits requests to CSB for disability discharge. CSB sends back either an approval for the discharge. If approved, the refund is sent to FM for accounting and ultimately, Treasury payment to the borrower. If denied, the account is transferred back to regular servicing status.
- **FFEL Loans:** Lenders file a claim with the GA when a loan is discharged for disability. The GA requests re-insurance by submitting the Forms 2000 to TPM. The GA then sends the FFEL Loan information to CSB (borrower demographic information, FFEL Loan information, the disability application, a doctor's certification of disability, and notification of any payments received while in the discharge process). While the paperwork is being processed, the GA applies any borrower payments to the outstanding loan balance. Once CSB has all of the appropriate documentation and the discharge process begins, any new payments from the borrower are forwarded from the GA to the CSB lockbox for payment. If the claim is approved, CSB notifies the GA and initiates the refund to the borrower via FM. If the claim is not approved, the loan returns to regular servicing status.
- **Perkins Loans:** Borrowers apply for disability discharge through their school. The school supplies CSB with the Borrower's Perkins Loan information, demographic information, the CDD application, a doctor's certification of disability, and notification of any payments received while in the discharge process (Note: the school receives no refunds for discharged Perkins Loans). While Direct and FFEL payments are recorded in the CSB lockbox, all Perkins payments made during CSB discharge processing are retained by the school. If the borrower is approved for discharge, CSB notifies the school to release the refunds to the borrower. However if the discharge is denied, the loan returns to regular servicing status.

For all discharge requests, CSB reports loan balances and status of disposition (accepted/rejected claim) to the National Credit Bureaus.

### **FM**

FM receives payment transactions from CSB (payments, refunds, misdirected payments, summary deposits, interagency transfers, drawdowns, and excess cash). Based on the transactions received from CSB, FM then generates accounting entries. With the exception of a few borrower level transactions (e.g., Direct Loan refunds or disability refunds), FM summarizes the transactions to the school level. The student level details are passed on to the CDA and are available for analytics and reporting.

The accounting in FM is sent to the Department of Education's Financial Management System Software (FMSS) in a GL to GL interface. FM also interfaces with ED CFO as it sends borrower refunds and receives budgetary entries.

#### *4.4.4.5 SERVICING / Consolidation*

### **CSB**



CSB is the point of origin for Consolidated Direct Loans. After being a borrower requests a consolidation, CSB verifies the payoff amounts by corresponding with lenders for the underlying FFEL, FISL, and HEAL Loans and with schools for the underlying Perkins Loans. If a borrower has at least one loan in default and is assigned to a collection agency, the PCA can facilitate the consolidation process by helping borrowers complete the application materials and by providing certification data on behalf of the loan-holder for whom they are servicing the loan.

After the borrower sends a signed Consolidated Loan Promissory Note (web or hard copy) to CSB, the new Consolidated Direct Loan information is sent to the CDA to establish a master copy of the Aid Entity. The underlying loans are updated by the servicers (CSB, lender, or school) as paid in full, and the CDA receives notification as part of the regular servicing updates.

CSB sends the consolidation transactions to FM, which updates the accounting to reflect payoff of the underlying Direct Loans and creation of the new Consolidated Direct Loan. In turn, FM sends the information to GAPS and receives acknowledgements of pay offs to the lender which held the underlying loan. For lenders signed up for electronic direct deposit, the roster payoff confirmation details are made available by posting them on the web. In the case of overpayments or underpayments, CSB corresponds with the lenders or schools to make any necessary adjustments to the payoff amounts.

#### 4.4.4.6 *SERVICING / Collections*

##### **CSB**

After failing to collect on defaulted loans, GAs (FFEL), lenders (FISL), or schools (Perkins or grant overpayments) may assign the debt to FSA and submit the Aid information to CSB. CSB updates CDA with all changes to the Aid Entity during the collections process. The process is for handling the various defaults is outlined below:

- **Direct Loans:** A payment is considered delinquent if the borrower is late for 1 to 270 days. On day 271, the borrower goes into default. After 90 more days (361 total days late on a payment), the loan is flagged for collections processing. If a borrower makes 12 consecutive payments on a default loan, the account automatically goes into rehab and is returned to non-defaulted status.
- **FFEL/FISL Loans:** After failing to collect on defaulted FFEL Loans, GAs may assign the loan to FSA and submit the Aid information to CSB via the FSA Gateway; in return, CSB sends notification of whether the defaulted loan was approved or rejected. Lenders request CSB to send out pre-claim letters for borrowers of FISL loans. If a letter is undeliverable, a skip trace request is made to USPS. Once 60 days has expired, defaulted FISL loans are transferred to CSB for servicing. Once in CSB, any rehabbed loans are returned to non-defaulted status.
- **Perkins Loans:** Schools send notification letters to Perkins borrowers after 60 days of default. On the 61<sup>st</sup> day, schools begin collections on defaulted Perkins loans. The school must monitor its fiscal health (defaulted Perkins loans are written off by the school) and



the school's CDR (schools must remain below a certain threshold in order to qualify for Title IV Aid) when determining the length of time that the borrower will remain in collections with the school. The schools can transfer defaulted Perkins loans to FSA (CSB) any time after 60 days by sending the loan information to CSB via the FSA Gateway. Once in CSB, any rehabbed loans are returned to non-defaulted status. Unlike Perkins loans, overpayments for Pell and FSEOG grants are simply transferred to CSB for collections.

CSB sends and receives information from borrowers in an attempt to collect on defaulted loans or grant overpayments. As part of the collections process, CSB also interfaces with PCAs and other external agencies via the FSA Gateway.

- **Borrower:** CSB send various correspondences to the borrower such as letters requesting demographic data, bill notifications, checks for overpayments, and refunds. The borrower sends to CSB updated demographic and school information, aid package modifications or additions, and loan information.
- **Private Collections Agencies:** New defaulted loans are transferred six times a year to PCAs for collections. The proportion of loans, loan types, and loan amounts transferred to a PCA are calculated based on past performance and other metrics by FSA. Any change to a loan that is in assignment (bankruptcy, death, disability, balance changes, litigation, additional fees, and penalties) is reported by CSB to the PCA. In turn, the PCA updates CSB with any changes to the borrower's account while it is in assignment (name, address, account information changes, etc.).

Adjustments to defaulted loans in PCA assignment are received in the financial transaction extract or payment file which relays financial transactions on accounts while in collections. Additional adjustments are made if a loan is recalled for litigation but is discovered to be recalled in error and needs to be reassignment back to a PCA.

A weekly approval / disapproval of PCAs discharge of claims is transferred by CSB so that earnings on collections can be calculated.

- **Treasury:** Two Treasury organizations that interface with FSA are the IRS Department (Treasury IRS) for skip tracing and the Financial Management System (Treasury FM) for offset of borrower funds (garnishments, annuity checks, disability checks, travel checks, lottery, etc.).

The request for offset is made from the GA through CSB to the Treasury FM system on an annual basis. The GA sends weekly any TOP increases or decreases in balance, refunds, adjustments, address corrections, reactivations or inactivations. The Treasury sends back a weekly offset reversal file that contains a list of accounts that are in offset or reversal.

GAs and PCAs request skip trace information (new address information, financial data) from the Treasury via CSB in order to get current demographic information for collection activities.

- **DOJ, DOD, and USPS:** When a borrower is in litigation with the government, CSB places the account in litigation status and sends DOJ paper forms detailing defaulted borrower information. While in litigation, DOJ can receive payments for defaulted loans which are sent back to CSB (via the National Payment Center (NPC)).



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CSB is responsible for collections on defaulted Title IV Aid to government employees except DOD and USPS. As part of the Federal Employee Salary Offset Program (FESOP), CSB sends DOD and USPS a list of every defaulted borrower. DOD and USPS sends back to CSB a list of employees that are matched as federal employees in their system, not matched or nonfederal, and an error file. For those names that are matched, due process begins and DOD / USPS start collections (letter notification, etc.). As payments for defaulted federal employees are collected, DOD and USPS forward the funds to CSB (the National Payment Center receives these checks and processes them).

- **Third-Party Servicer:** When a borrower who has defaulted declares bankruptcy, the loans are transferred to a third-party servicer.



#### 4.4.5 School

The figures below depict the As-Is and To-Be Entity Flow Diagrams. Appendix I provides a full size version of the To-Be diagram.

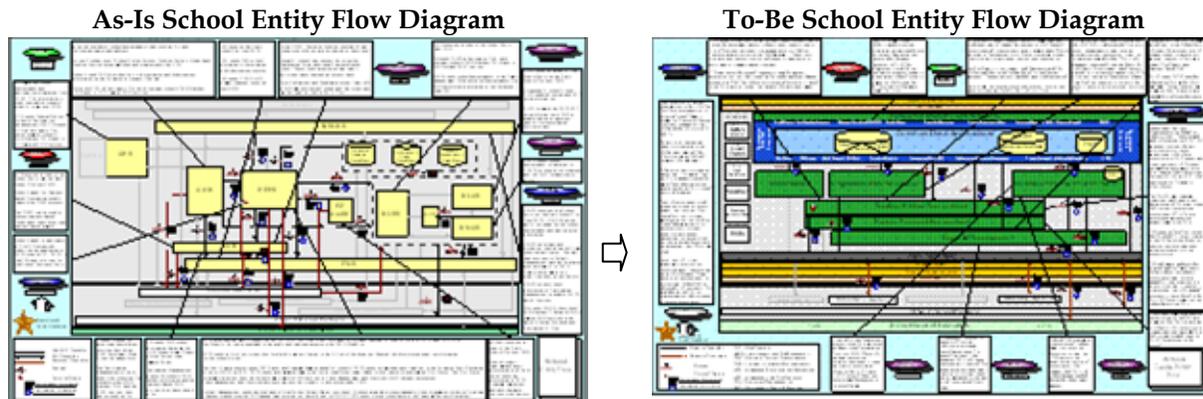


Figure 19. Change from As-Is to To-Be School Entity Flow Diagram

In the To-Be, target state data architecture, the master copy of the School Entity resides in the Central Data Architecture. An Institution can update their information in the CDA at any stage of the Life Cycle via the School Portal or FSA Gateway. Various enterprise internal and external systems also have access and can update selected School Entity information. The single, integrated view of the school in the CDA allows institutional representatives to view their school's data, analyst to perform cross-system analytics, and trading partners and other external entities to obtain school information by accessing the CDA via the FSA Gateway or the web. While not always stated explicitly, it is implied that the RID mapping standards are utilized when accessing and updating CDA School Entity information.

Since the CDA is the authoritative source for school data and is accessible by all FSA Business Areas, there is no longer a need to distribute a "School File" to individual FSA systems. It is still available to external parties who need to receive school data. An Enterprise Shared Function ensures the school information stored in the CDA is available to all Business Areas and other interested parties.

##### 4.4.5.1 INSTITUTION PARTICIPATION / Partner Application

###### **TPM**

The eAPP and FISAP functionality previously used by schools to apply for participation in Title IV programs is part of the TPM business capability area. Schools apply to participate in Title IV programs (Campus-Based, Pell, Direct Loan and FFEL) by submitting an application to TPM. The Partner Application process includes new applications, re-certifications, request for Campus Based (FWS, FSEOG, and Perkins Loans) funding and institutional updates, as well as modifications to Program Participation Agreements. Additionally, schools can make changes to specified demographic information in the Common Data Architecture (CDA) via the FSA Gateway.



TPM also processes the schools request to enroll in various enterprise services. The schools also send enrollment change requests to TPM. The schools' enrollment information is stored in the CDA and is used by the various FSA business areas.

#### *4.4.5.2 AID AWARENESS & APPLICATION / Eligibility*

##### **CDA**

The CDA stores school eligibility and distribution information established during the Partner Application and various other business processes in TPM. This information is used by the Application business capability to determine school's eligibility to receive ISIRs using the ISIR Distribution Enterprise Shared Function.

#### *4.4.5.3 DELIVERY / Origination & Disbursement*

##### **TPM**

As previously noted, schools request Campus Based Funding as part of an application sent to TPM. Annually, schools can also request additional Campus-Based Funds by using a Reallocation Form. These funds are monies that other institutions have returned to the Department of Education as unused awards. These reallocated funds can only be used in the Federal Work- Study Program to pay students working in Community Service Jobs.

For Pell Grants, Direct Loans, and Campus Based Aid, TPM establishes initial funding levels, school ceiling amounts, funding delivery methods (Advanced Pay or Pushed Cash), and funding controls.

Note: More information concerning schools' funding and payments can be found in the Aid Entity Flows.

##### **O&D**

Origination & Disbursement accesses the school information in the CDA. O&D is able to modify specific school demographic fields such as program contact information. Using the information established by TPM, O&D manages the schools funding levels for Pell Grants, Direct Loans, and Campus Based Aid.

For Campus Based Aid, O&D distributes Tentative Funding Level and Final Funding Level notifications to the schools and stores the information in the CDA. The Tentative Funding Level notification allows schools to compare requested award amounts with the FSA calculation. In March, the final funding notifications, also known as Statement of Account Letters, are sent.

##### **FM**

FM accesses the CDA to obtain all updates to the School Entity. FM uses this information with origination and disbursement records to account for Direct Loans, Pell Grants and Campus-Based Aid.



GAPS sends DUNS number changes to FM via the FSA Gateway. These changes are stored in the CDA and made available to all other business areas.

#### *4.4.5.4 INSTITUTION PARTICIPATION / Oversight*

##### **TPM**

There are a number of external entities that participate in Title IV delivery. Their participation is governed by the Higher Education Act, and overseen by FSA. The CMO function of Trading Partner Management oversees the participation of schools and third-party servicers.

TPM executes oversight processes including the determination of school eligibility for funding, identifying potentially non-compliant schools, and the appropriate course of action in the case of non-compliance. In the past these processes consisted of manual processes that did not function at an integrated, enterprise-wide level. As such, many of these processes resulted in varied outcomes, manual data entry and/or paper based processing. The To-Be target state vision outlines the means whereby FSA can automate, consolidate, and simplify its oversight methodologies.

TPM triggers the CDR calculation and distribution for schools. This is the process of calculating and publishing draft and official CDRs in order to gauge the overall default rate for student loan programs used for monitoring and determining school eligibility. As an Enterprise Shared Function that utilizes the CDA, the CDR calculation, notification, and appeals process is automated and simplified.

The CDR is defined as the percentage of a school's student borrowers who entered repayment on FFEL and/or Direct Loans within a cohort fiscal year and then defaulted on those loans during the same or following cohort fiscal year. For example, the Fiscal Year 2000 Official CDR was calculated and mailed to recipients in August 2002, based on Fiscal Years 2000 and 2001 data. Depending on the results of a CDR, schools may or may not be sanctioned. The two reasons that schools might be sanctioned are: 1) a school's three most recent official CDRs are above a certain percentage or 2) a school's current official CDR is greater than a specified percentage. The draft CDR provides schools the opportunity to appeal the CDR as initially calculated. If a school does not agree with its rate after being notified of its CDR, it can initiate an appeal process within TPM. Based on appeal results, any new or different data that is submitted by the school and accepted by FSA is used in the calculation of the Official CDR.

Schools submit financial data and compliance audit information to TPM. TPM determines whether the audits are materially complete and conducted in accordance with applicable standards. The schools' audit and financial data are factors used by Case Management personnel to identify potential risk and to determine risk scores. Schools' financial and audit information, after being processed in TPM, is stored in CDA.

TPM sends a list of institutions due for eligibility re-certification to the Office of the Inspector General (OIG). This list is sent as a request for the schools' open action information. The OIG responds to TPM's request with the appropriate information. The Audit Clearinghouse sends



audit and financial data to TPM on behalf of schools. TPM sends outstanding audit liabilities to the Common Audit Resolution Systems (CARS) at the Office of Post -secondary Education (OPE). TPM maintains information in the CDA regarding administrative action, appeals, fines imposed, letters of credit, stop payments, audits, program reviews, CMIS issues, institution demographic and eligibility data. The TPM Institution Assessment Model uses this data to calculate the Probability (Risk) Score. This score along with other essential data regarding school financial and audit information is maintained in the CDA.

TPM also collects listings of low-income areas in order to enable O&D processing of teacher cancellation payments. These low-income areas indicate areas where teachers who have borrowed funds may seek cancellation of their loan debt. In order to receive updates to this listing, TPM sends requests to State Agencies. The State Agencies provide the latest listing information via the FSA Gateway.

Schools communicate with TPM to request Community Service Waivers, Use of Funds Waiver Request, and Title III or Title V Approval Waivers. Title III or Title V Schools do not have to pay a matching portion of Federal Work-Study funds distributed.

#### **PPM**

PPM uses Campus Based Aid details collected by O&D and stored in the CDA to calculate a school's ACA. An invoice is created and made available for FMS to process and send to GAPS for payment to the school.

#### *4.4.5.5 SERVICING / Repayment*

#### **CSB**

Although CSB maintains an independent store of data including School Entity information, it retrieves school information from the CDA, which houses the "master copy" of school information. CSB uses this information for various functions, such as verifying that a borrower applying for deferment will be attending an eligible school. All updates and changes during the repayment process that affect the School Entity should be reflected in the CDA.

#### *4.4.5.6 SERVICING / Consolidation*

#### **CSB**

Occasionally, schools update Electronic Funds Transfer (EFT) setup information to enable consolidation payoff of underlying loans. The updated GAPS EFT setup information is sent to FM to enable electronic payment transfer for Perkins Loans which are paid-off as part of a Consolidated Direct Loan.

#### *4.4.5.7 SERVICING / Collections*

#### **CSB**



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As noted in the Repayment process step, CSB retrieves updated school information from the CDA. These CDA updates ensure the collections process is using up to date school data. (Note: in the As-Is state, DMCS currently does not receive regular updates to its school data).



#### 4.4.6 Financial Partner

The figures below depict the As-Is and To-Be Entity Flow Diagrams. Appendix I provides a full size version of the To-Be diagram.

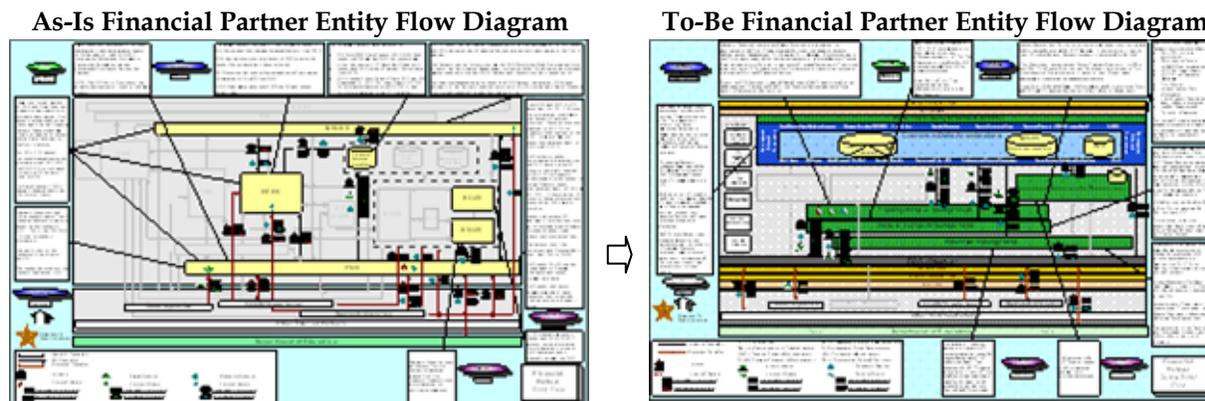


Figure 20. Change from As-Is to To-Be Financial Partner Entity Flow Diagram

In the To-Be, target state data architecture, the Financial Partner Entity master copy resides in the Common Data Architecture (CDA). The CDA provides a single, integrated repository and view across the Life Cycle for all Financial Partners. The Financial Partners exchange data through the FSA Gateway or via the Financial Partner Portal. While not explicitly stated in each step, it is implied that the RID and its related standards are utilized to manage an identifier for each new Financial Partners and when accessing or updating information.

##### 4.4.6.1 INSTITUTION PARTICIPATION / Partner Application

###### **TPM**

Trading Partners apply for eligibility and participation through Trading Partner Management (TPM). The FSA Gateway provides a standardized means whereby the Trading Partners can submit their enrollment information to TPM. The Trading Partners are required to submit common data sets for demographic data, including Trading Partner name, address, contacts, organization executive officers, phone numbers, email addresses, and other data as appropriate. An Edit Check ESF runs against the application data performing common logic for shared data (e.g., verify address formatting is valid).

After answering a number of screening questions, an entity is assigned a RID. This RID enables analysis and reporting for the application process, providing the enterprise the ability to measure its timeliness and “pull through” ability. Trading Partner Management manages the CDA’s participation and entity relationship tables.

All Trading Partner information is stored in the CDA, and TPM is the single FSA point of origin for all Trading Partner Business Entities, including:

- Guaranty Agencies



- State Agencies
- Lenders
- Post Secondary-Institutions (see To-Be School Entity Flow narrative in Section 4.4.5)

In the As-Is, there is no formal application process for GAs or State Agencies. Any requests are handled on an ad hoc basis by the Financial Partners Channel and are usually initiated by a request from a State Governor or Non-Profit Entity via letter. For lenders the process is initiated by a GA submitting an eligible lender's basic information, followed by the lender submitting their demographic information via LAP. In the To-Be vision, TPM facilitates these processes by featuring application instructions and providing a central point for collecting demographic information from the agencies.

TPM has the ability to capture the applicant's contact data, to receive and share formal letters of applications from State Governors, to receive GA's eligible lender listings, and to present and receive participation agreements, including GA Voluntary Flexible Agreement (VFA) agreements. The Trading Partners also register delegated administrators, designate guarantor/servicer relationships, and enroll in various program services, such as GA Form 2000 reporting, Lender 799 reporting, etc.

TPM enables Trading Partners to submit changes to their demographic and participation information after initial eligibility has been determined. This includes changes resulting from new or modified Guaranty Agency agreements (new VFAs if applicable, VFA terminations, etc.) or bank mergers and new servicer arrangements (for lenders), or notice of participation termination.

The submittal of applications to participate, changes to participation data, and funding request information (for State Agencies) initiates notices and workflow triggers for Financial Partners and Financial Management staff where appropriate. For example, new lender applications trigger a case to the appropriate Partner Services staff, who subsequently make an eligibility determination within the TPM.

### **FM**

FM receives a notice of all Financial Partner updates from the CDA including new Financial Partner eligibility information necessary for financial transactions between FM and the partner. In return, FM feeds the CDA with any updated Financial Partner information.

#### *4.4.6.2 DELIVERY / Origination & Disbursement*

### **PPM**

State Agencies apply annually for LEAP/SLEAP funding. State Agencies submit the following to TPM:

- Form 1288 - Demographic updates and requested award funds
- Reallocation Form - Planned return of unused portion of the award amounts



- Performance Report – Report of most recently completed LEAP/SLEAP process with actual expenditures amounts and descriptions.

### **FM**

The disbursement of funds to State Agencies is controlled by FM accessing the LEAP/SLEAP data in the CDA and sending funding information to GAPS. GAPS passes the information on to the Treasury Department for actual payments to the State Agencies. While FSA controls the funding of these grants it does not store any detailed student level state grant information.

The annual State Agency application to participate in LEAP/SLEAP (Form 1288) features pre-population of application and prior year funding data as applicable.

#### *4.4.6.3 INSTITUTION PARTICIPATION / Oversight*

### **TPM**

As previously noted, State Agencies submit a Performance Report as part of their LEAP/SLEAP application via the FSA Gateway. The Performance Report serves as both a funding tool and an oversight program analysis tool.

GAs and Lenders (originating \$5,000,000 or more during a program year) participating in Title IV (FFEL) delivery are required to submit annual audits. TPM accesses the Lenders information in the CDA and flags those that originated over \$5,000,000 and are thus required to submit an audit. For any outstanding audits, the TPM initiates a Missing Audit letter, and subsequently flag the trading partner in the CDA so FM is notified to suspend payment if the audit remains outstanding.

In the As-Is, these audits, in hard copy form, are sent to the National Clearinghouse, edited for completeness, and sent to FSA. In the To-Be, this process could be automated and converted to an electronic process with the implementation of TPM. There are two options:

1. The National Clearinghouse images the documents and submits them to TPM via the FSA Gateway. An automated sort function is enabled by the implementation of the Routing ID and through other means.
2. The National Clearinghouse's role in the process is eliminated, resulting in savings and efficiencies. Trading Partners submit audits directly to FSA via the FSA Gateway. FSA would not have to sort the audits received from the Clearinghouse. Sorting is necessary in the "As Is" environment since the Clearinghouse receives audits from guarantors, lenders, and schools. The Schools Channel within FSA currently sorts the audits (by FSA Channel, Schools or Financial Partners). This is a manual and time-consuming process.

Financial Partners – Partner Services reviews the audits, captures audit finding information, triggers workflow for minor and major findings, and close out audits upon review completion. The audits are stored within the CDA, referenced for subsequent audit submission and processing, and accessed for risk determination. GAs and Lenders may appeal audit findings by submitting an appeal via the FSA Gateway. Appeal information is fed to the TPM, which triggers appeal processing workflow for Partner Services.



Partner Services are required to perform Lender and School Program Reviews for lenders and schools that meet certain participation criteria. For example, GAs are required to perform a Program Review for each of the Top Ten originating lenders (determined by annual origination volume) and for each school with a CDR of 20% or greater. There are risk determinations and other factors that are criteria for the Program Reviews performed by Partner Services. This analysis would be performed using data residing in the CDA.

Guarantors and Partner Services use Program Review business process capability, including program review scheduling, tracking, data input (i.e., the capture and coding of findings and resolutions), and appeal processing. Guarantors access the tools via the FSA Gateway.

The calculation of draft and official CDRs is performed by TPM, using the data reported by Guarantors to the CDA via the FSA Gateway. TPM stores the calculated rates in the CDA and distributes CDR notifications. Guarantors may appeal Draft Cohort Rate calculations. Appeal notification, processing, tracking and resolution capability would reside within the TPM. The appeal resolution information is stored in the CDA.

An Enterprise Shared Function could be created to support more frequent calculations of the Draft Cohort Rate, “instant rates,” that may be viewed at any time by Guarantors or Lenders. Currently, only GAs are provided the Draft CDRs.

### **Enterprise Analytics and Research**

The CDA stores Financial Partners information such as:

- GA FFEL Portfolio information
- GA & Lender CDR Information
- GA FFEL Loan Claims
- GA VFA Performance Measures
- Risk Scores
- GA and Lender Audit information
- State Agency Application and funding information
- Lender Financial and Portfolio Information

This centrally maintained data enables more accurate cross-system analytics and provides the basis for case review triggers.

### **PPM**

PPM manages the functionality required to initiate the partner payment processing by gathering the required data inputs:

- **LPIF (for GAs):** FSA is required to pay LPIFs to GAs to offset the costs of originating Student Loans in the FFEL Program. In order to facilitate this process, PPM accesses the FFEL Loan detail data in the CDA and computes aggregate disbursement amounts for each GA’s portfolio and transmit this information to FM. PPM transmits the back up



detailed loan level data to substantiate the LPIF Computation to the GAs via the FSA Gateway.

- **AMF (for GAs):** FSA is required to pay AMFs to the GAs each year for servicing the Student Loans in the FFEL Program. In order to facilitate this process, PPM accesses the guarantor's FFEL Loan detail data in the CDA and computes aggregate Outstanding Principal Balance on open loans at the end of the current year for each GA's portfolio and transmit this information to FM. PPM transmits the back up detailed loan level data to substantiate the AMF computation to the GAs via the FSA Gateway.
- **Form 2000 (for GAs):** PPM maintains the Form 2000. Depending on the partner reporting requirements for the FFEL detailed loan data, there is the potential to prepopulate these forms by aggregating the data found in the CDA or to verify the reasonability of the GAs' aggregate reporting.
- **Form 799 (for Lenders):** PPM manages the Form 799 (this is As-Is Lender Reporting System (LaRS) functionality). Depending on the partner reporting requirements for the FFEL detailed loan data, there is the potential to prepopulate these forms by aggregating the data found in the CDA or to verify the reasonability of the Lenders' aggregate reporting.

PPM sends a record of each Lender on the system who filed an invoice in the past year, including information such as RID, name, city, state and zip, as well as the total interest paid out to that Lender in that year to the Census Bureau via the FSA Gateway.

## **FM**

For GAs, FM accesses the participation information (AMF, LPIF, and Form 2000) in the CDA, processes the information, and assigns accounting to the GA transactions via the custom FMS Account Mapping tables. GL entries are recorded and Accounts Payable (AP) invoices are created for each GA. The invoices are batched and reported to ED CFO, who then sends them to Treasury for actual disbursement to the GAs. The Treasury in return sends confirmations back to FMS via the ED CFO.

For the Lenders, FM uses the net of Interest and Special Allowances less Origination Fees and Miscellaneous Lender Fees to determine whether there is a net Accounts Payable (AP) or Accounts Receivable (AR) invoice for the Lender. If there is a net AP invoice, the total is reported to ED CFO for Treasury disbursement to the Lender. The Treasury in return sends Confirmations back to FM via the ED CFO.

If there is a net AR invoice, the Lender makes payments and the cash receipts are received by FM from the Lockbox. Lenders also make AR payments for other fees such as Consolidated Loan Rebate Fees and Student Loan Marketing Association Fees (Sallie Mae Fee).

The accounting of the Payments and Receivables is sent from FM to FMSS in a GL to GL interface.

### *4.4.6.4 SERVICING / All*



**CSB**

CSB accesses the CDA for any Lender of GA information required for its servicing processes.

*4.4.6.5 SERVICING / Consolidation*

**FM**

Occasionally, financial partners update EFT setup information to enable consolidation payoff of underlying loans. The updated GAPS EFT setup information is sent to FM to enable electronic payment transfer for loans which are paid-off as part of a Consolidated Direct Loan.



#### **4.5 Future Considerations**

This deliverable combined with the Technology Vision and Strategic Plan (deliverable 123.1.12) and Quality Assurance Strategy and Implementation Plan (deliverable 123.1.5) form a conceptual model for enabling the high-level Data Strategy business objectives. While this document outlines the To-Be business and data architectures, the Technology Vision and Strategic Plan develops the underpinning conceptual technical architecture. The Quality Assurance Strategy and Implementation Plan outlines an enterprise level methodology to address current quality issues and build a quality maintenance process to maintain the integrity of the data while the business is being transformed into the To-Be vision. The Implementation Plan of this Quality Assurance Strategy lays out the sequencing of the key data quality issues based on business needs, value, and urgency.

When analyzing the architectures presented in these documents, it is important to realize that there are a number of future considerations that are required before a plan for actual implementation can be formulated. These are ideas and concepts that may enhance the delivered value of the total solution. The following are some of these key future considerations:

- CSB was defined as a business capability area before the Data Strategy vision was delivered. As the CSB procurement and implementation efforts are completed, the alignment of CSB with the Data Strategy should be re-evaluated. While the Statement of Objectives requires CSB to deliver a variety of functions, some of these functions have the potential to become Shared Functions or services and may be best maintained at the enterprise level (e.g., performing credit checks and processing promissory notes).
- The TPM Business Capability Area represents the consolidation and integration of a number of FSA's current systems. The eCMO and Data Strategy (RID and Enrollment and Access Management) efforts have begun to describe some aspects of the TPM. A more detailed requirements and gaps analysis effort is currently being conducted to ensure TPM provides the same core functionality provided by the systems it will replace. The gaps analysis phase of this work will have important considerations that will impact the overall data strategy.
- The Enterprise Analytics and Research Business Capability Area coupled with the CDA and modernized business intelligence tools will enable better enterprise analytics. However, to identify all the potential analytical capabilities and their benefits, more detailed research will be required. Furthermore, while the CDA is defined to have a transactional and warehouse data store, the data feed/reporting requirements (e.g., level, frequency, and timing for FFEL and Campus Based reporting) and structures for these stores need to be examined in greater detail to ensure they will provide optimal analytical capacity.
- The Target State Vision involves the consolidation of business capability areas and enterprise data. As such, there are potential integration points for the existing call center and customer support function and services. Impacts to these areas need to be more fully explored before finalizing CDA and Technical Strategies requirements.
- As the business, data, and technical architecture change there will likely be opportunities to better align FSA's organization with these changes.



## Data Strategy Enterprise-Wide FSA Data Strategy Framework Data Framework Specification

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- During the first Data Strategy Visioning Retreat, a number of statutes and regulations were noted as having potential implications for the target state vision (see Appendix K: Data Strategy Retreats - Meeting Minutes for a complete listing). In the future, changes may need to be recommended for these statutes in order to fully realize the benefits of the target state vision.

These future considerations represent some of the next steps towards realizing FSA's Target State Vision of a truly integrated enterprise. By incorporating these considerations as the Data Strategy progresses, it will further refine the requirements and details of the target state.



## **Appendix A: Acronyms**



## **Appendix B: FSA Business Integration Group Vision Framework**



## **Appendix C: Data Strategy Business Objectives**



## Appendix D: Mad Dog Mappings



## **Appendix E: Target State Business Architecture Diagram**



## **Appendix F: To-Be Business Architecture System Mappings**



## **Appendix G: Target State Function Matrix**



## Appendix H: To-Be Financial Aid Life Cycle Diagram



## **Appendix I: To-Be Business Entity Flow Diagrams**



## **Appendix J: FSA BIG - Meeting Minutes**



## **Appendix K: Data Strategy Retreats – Meeting Minutes**